Main

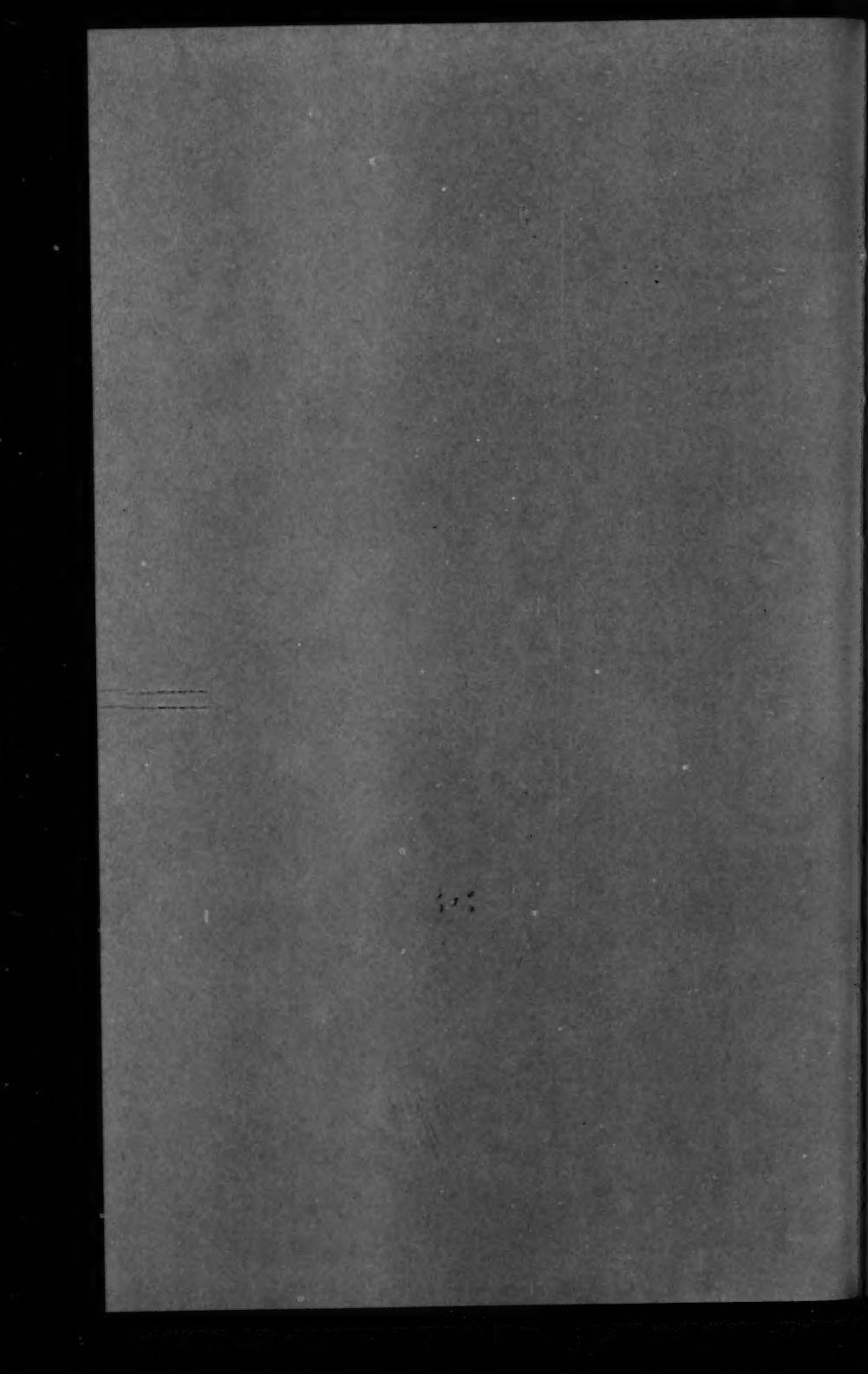
WILDLIFE REVIEW

OHIO STATE UNIVERSITY
JUN 3 1966
LIBRARY

NUMBER 119 SEPTEMBER 1965

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

L1
.54
no. 119.



WILDLIFE REVIEW

An abstracting service for wildlife management
Issued for the information of cooperators
by the Bureau of Sport Fisheries and Wildlife
Fish and Wildlife Service
UNITED STATES DEPARTMENT OF THE INTERIOR

September 1965 Patuxent Wildlife Research Center, Laurel, Maryland No. 119

Use of funds for printing this publication approved
by the Director of the Bureau of the Budget, September 30, 1965.

CONTENTS

General conservation
Natural resources & climate 2
Soils 2
Conservation education 3
Plants
Forest surveys 3
Wildlife
Biotas, ecology, natural history 3
Nature protection & rare & extinct species 4
Morphology, physiology, behavior, migration 4
Effects of chemicals, weather, cars, etc. 5
Biometrics 6
Techniques 6
Management & research, general . 6
Introductions 8
Food habits & techniques 8
Predation, crop damage, control 9
Management & ecology of habitats & animals
Wetlands & wildlife 9
Forestland
Forestry & ecology 9
Mammals
General 9
Populations, home ranges, communities 10
Faunas & manuals 11
Parasites & diseases 12
Shrews, moles, bats 12
Rabbits & pikas 15
Rodents
Miscellaneous 17
Mammals
Rodents
Rattus & Mus 25
Sciurids 25
Beaver 28
Muskrat & nutria 29
Carnivores
Bears 29
Raccoon, ringtail, coati 30
Mustelids 30
Dogs, wolves, foxes 31
Cats 31
Big game
General 32
Deer (Odocoileus) 36
Marine 40
Other groups 42
Birds
General 42
Morphology, physiology, behavior, migration 43
Manuals, faunas, communities ... 50
Populations & fluctuations 51
Economics, control, mortality .. 52
Parasites & diseases 54
Game birds--general 54
Quail 54
Pheasants 55
Grouse, partridge, etc. 56
Doves & pigeons 57
Waterfowl 58
Cranes, rails, shorebirds 64
Hawks & owls 66
Blackbirds, starlings, crows ... 67
Other birds 68
Reptiles & amphibians 70
Author index 74

Except as indicated, abstracts are by Kenneth J. Chiavetta, editor, and Paul A. Stewart, former assistant editor.

NATURAL RESOURCES & CLIMATE

Vshivkov, F. N. [ANIMAL CONSERVATION ON THE CRIMEA.] In: (Notes from the Scientific Session of the Council of the Crimean Oblast Division of the Ukranian Society for Conservation and Cooperation in the Development of Natural Resources.) Krymizdat (Simferopol'). p. 72-77. 1962. [From Biol. Abstr. 45 (17), 1964, from Referat. Zhur., Biol., 1963, no. 22I240. Transl. of Russian abstr.] WR 119: 2

SOILS

Crout, Jack D., and others. SOIL SURVEY OF JEFFERSON COUNTY, TEXAS. SCS, Ser. 1960, no. 21. i + 73 p., 18 figs. + single-fold maps based on aerial photos and bound in. Feb. 1965. Sold by Supt. Documents. WR 119: 2
With a section entitled: Management of wildlife.

Dodge, Darold A., and others. SOIL SURVEY OF FORD COUNTY, KANSAS. SCS, Ser. 1958, no. 32. i + 84 p., 15 figs. + single-fold maps based on aerial photos and bound in. Aug. 1965. Sold by Supt. Documents. WR 119: 2
With a section on wildlife management.

Franki, Guido E., and others. SOIL SURVEY OF NUECES COUNTY, TEXAS. SCS, Ser. 1960, no. 26. i + 65 p., 10 figs. + single-fold maps based on aerial photos and bound in. June 1965. Sold by Supt. Documents. WR 119: 2

Grice, Darrell G., and others. SOIL SURVEY OF HOCKLEY COUNTY, TEXAS. SCS, Ser. 1961, no. 27. i + 65 p., 25 figs. + single-fold maps based on aerial photos and bound in. Aug. 1965. Sold by Supt. Documents. WR 119: 2

Harms, G. F., and others. SOIL SURVEY OF WABASHA COUNTY, MINNESOTA. SCS, Ser. 1959, no. 41. i + 131 p., 19 figs. + single-fold maps based on aerial photos and bound in. June 1965. Sold by Supt. Documents. WR 119: 2
With a section on the management of wildlife.

Heffner, R. L., and others. SOIL SURVEY OF ALLEN COUNTY, OHIO. SCS, Ser. 1960, no. 24. i + 99 p., 25 figs. + single-fold maps based on aerial photos and bound in. Aug. 1965. Sold by Supt. Documents. WR 119: 2
With a section on wildlife.

Huckle, H. F., and H. H. Weeks. SOIL SURVEY OF WASHINGTON COUNTY, FLORIDA. SCS, Ser. 1962, no. 2. i + 119 p., 32 figs. + single-fold maps based on aerial photos and bound in. May 1965. Sold by Supt. Documents. WR 119: 2
With a section on the use of soils for wildlife.

Langan, L. N., and others. SOIL SURVEY OF THE LOVELOCK AREA, NEVADA. SCS, Ser. 1958, no. 31. i + 87 p., 15 figs. + single-fold maps based on aerial photos and bound in. June 1965. Sold by Supt. Documents. WR 119: 2
With a section on managing soils for wildlife.

Neeley, John A. SOIL SURVEY OF TOMPKINS COUNTY, NEW YORK. SCS, Ser. 1961, no. 25. i + 241 p., 27 figs. + single-fold maps based on aerial photos and bound in. July 1965. WR 119: 2
The section on wildlife is further subdivided: Present wildlife patterns and Soil interpretations for wildlife habitat.

Sherfey, Lester E., and others. SOIL SURVEY OF THOMAS COUNTY, NEBRASKA. SCS, Ser. 1961, no. 29. i + 44 p., 16 figs. + single-fold maps based on aerial photos and bound in. Aug. 1965. Sold by Supt. Documents. WR 119: 2
With a section on wildlife.

SOILS--Continued

Sketchley, Harold R., and others. SOIL SURVEY OF THE AMADOR AREA, CALIFORNIA. SCS, Ser. 1961, no. 26. i + 167 p., 30 figs. + single-fold maps based on aerial photos and bound in. Sept. 1965. Sold by Supt. Documents. WR 119: 3
With a section on wildlife.

CONSERVATION EDUCATION

Osborn, Katherine H., Ray A. Yoder, and William I. West. FORESTRY THESES ACCEPTED BY COLLEGES AND UNIVERSITIES IN THE UNITED STATES / SUPPLEMENT JULY 1963 -- JUNE 1964 INCLUDING ADDITIONS FOR 1950 -- JUNE 1963. Forest Sci. 11 (2): 244-256. June 1965. WR 119: 3
A listing, by institution, of 274 theses of which roughly 10% deal with wildlife.

PLANTS--FOREST SURVEYS

Murphy, Dean A., and John H. Ehrenreich. FRUIT-PRODUCING TREES AND SHRUBS IN MISSOURI'S OZARK FORESTS. J. Wildl. Mgmt. 29(3): 497-503. July 1965. WR 119: 3
[Mo. Conserv. Comm., Columbia.] Abstract: This is a report on a survey of the abundance and distribution of trees and shrubs producing fruits eaten by wildlife in the Missouri Ozarks. Field crews recorded 8,032 plants of 21 species. Dogwood (Cornus florida), sassafras (Sassafras albidum), fragrant sumac (Rhus aromatica), and dwarf sumac (R. copallina) were the most abundant species and made up 80 percent of the sample. Abundance varied by forest type. The greatest variety (19 species) and density (194 plants per acre) occurred in the bottomland hardwood type. The two species with highest density were dogwood (95 trees per acre) and fragrant sumac (122 clumps per acre). None of the fruiting species had a high percentage of plants with fruit. The data indicated that abundance and fruiting were influenced by crown cover of overstory trees, aspect, and position on slope. A summary of food-habits studies showed that fruits are important foods for several wildlife species and indicated the need for maintaining variety in the habitat.

WILDLIFE--BIOTAS, ECOLOGY, NATURAL HISTORY

Bromlei, G. F. [THE IMPORTANCE OF SNOW COVER IN THE DISTRIBUTION OF WILD ANIMALS IN THE MARITIME AND AMUR AREAS.] In: (Problems of zoological research in Siberia.) Knigoizdat (Gorno-Altaisk). p. 32-34. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 22I199. Transl. of Russian abstr.] WR 119: 3

Ishunin, G. I., and Kh. S. Salikhbaev. [COMMERCIAL GAME ANIMALS AND BIRDS OF THE NORTHERN SLOPES OF THE TURKESTAN RANGE.] In: (Commercial game animals of Uzbekistan.) Akad. Nauk Uzbeksk. SSR (Tashkent). p. 5-24. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I279. Transl. of Russian abstr.] WR 119: 3

Kirikov, S. V. [ON "MIXED" FAUNA IN STEPPE AND FOREST ZONES.] Izvest. Akad. Nauk SSSR Ser. Geog. 1: 29-35. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 13I261. Transl. of Russian abstr.] WR 119: 3

Marakov, S. V. ZVIRENA KOMANDORSKÝCH OSTROVŮ. [THE FAUNA OF THE COMMANDER ISLANDS (BERING SEA).] Ziva 10(6): 219-222, illus. 1962. [From Biol. Abstr. 45(17), 1964. In Czech.] WR 119: 3
183 species of birds and 15 species of mammals were identified.

Naumov, N. P. [THE ECOLOGY OF ANIMALS. A TEXTBOOK FOR UNIVERSITIES OF THE USSR.] Vysshaya Shkola (Moscow). 618 p., illus., maps. 1963. Price 1 ruble 24 kopecks. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1964, no. 1D14K. Transl. of Russian abstr.] WR 119: 4

Nurgel'dyev, O. N., Kh. Babaev, and L. S. Marinina. [NOTES ON THE FAUNA AND ECOLOGY OF THE TAKYR-RIDGE COMPLEX OF THE CENTRAL KARAKUM MOUNTAINS.] Izvest. Akad. Nauk Turkmensk. SSR Ser. Biol. Nauka 2: 51-56. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 5D4. Transl. of Russian abstr.] WR 119: 4

Panyutin, P. [GAME ANIMALS OF THE (SOVIET) FAR EAST.] Sel'skokhoz Proizvodstvo Sibiri i Dal'nego Vost. 5: 82. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I280. Transl. of Russian abstr.] WR 119: 4

Rudyshin, M. P. [MICROCLIMATE OF HABITATS AND ITS SIGNIFICANCE IN THE LIFE OF BIRDS AND MAMMALS.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 165. 1962. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1963, no. 8I241. In Russian.] WR 119: 4

WILDLIFE--NATURE PROTECTION & RARE & EXTINCT SPECIES

Kryukov, K. I. [THE STATUS AND PROBLEMS OF THE CONSERVATION OF GAME ANIMALS IN THE KOMI ASSR.] In: (The conservation of nature in the Komi Autonomous Soviet Socialist Republic.) (Syktyvkar). p. 94-99. 1961. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 22I239. Transl. of Russian abstr.] WR 119: 4

Starkov, I. A. [CONSERVING AND ATTRACTING USEFUL NON-GAME ANIMALS IN THE OUTSKIRTS OF LARGE POPULATED PLACES.] In: (Questions of conservation in the Buryat-Mongol Autonomous Soviet Socialist Republic.) (Ulan-Ude). p. 74-80. 1962. [From Biol. Abstr. 45(17), 1964, from Referat. Zhur., Biol., 1963, no. 22I260. In Russian.] WR 119: 4

Urbański, Jarosław. NOWE ROZPORZADZENIA DOTYCZACE OCHRONY ZWIERZAT W BUŁGARSKIEJ REPUBLICE LUDOWEJ. [NEW LEGISLATION FOR ANIMAL PROTECTION IN THE PEOPLE'S REPUBLIC OF BULGARIA.] Chrońmy Przyrode Ojczysta 18(6): 31-39, illus. 1962. [From Biol. Abstr. 45(22), 1964. In Polish.] WR 119: 4
[State Council Protect. Nat., Warsaw, Poland.]

WILDLIFE--MORPHOLOGY, PHYSIOLOGY, BEHAVIOR, MIGRATION

Kalmus, H. COMPARATIVE PHYSIOLOGY: NAVIGATION BY ANIMALS. Ann. Rev. Physiol. 26: 109-130, illus. 1964. [From Biol. Abstr. 45(23), 1964.] WR 119: 4
[Galton Lab., Univ. Coll., London, England.] There is now little doubt that many animals can use the sun, the moon, and the stars as celestial signposts and the sun as the principal time cue. Whether any of them are capable of true bicoordinate celestial navigation seems still an open question.

Nasimovich, A. A. [THE SNOW COVER IN THE CENTRAL URAL MOUNTAINS AND ITS EFFECT ON THE LIVES OF ANIMALS.] In: (Papers on theoretical and special questions of scientific and technical information. Geographical collection. Institute of Scientific Information of the Academy of Sciences of the USSR.) (Moscow). p. 113-129. 1963. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 24I272. Transl. of Russian abstr.] WR 119: 4
Data are given on the condition of the snow cover, on the distribution of elk, and the behavior of foxes. A description is given of the mass death of hazel grouse in the hoarfrost in the former Visim Preserve. The behavior of the nutcracker, by which he retrieves pine nuts from beneath the snow, is discussed.

WILDLIFE--EFFECTS OF CHEMICALS, WEATHER, CARS, ETC.

Boykins, Ernest A. DDT RESIDUES IN THE FOOD CHAINS OF BIRDS. Ph.D. thesis, Mich. State Univ. 70 p. 1964. [From Dissertation Abstr. 25(11), 1965.] WR 119: 5

Churkina, N. M. [SOME PROBLEMS ON INSECTICIDE AND MINERAL FERTILIZER EFFECTS ON BIRDS.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 239-241. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 12I124. Transl. of Russian abstr.] WR 119: 5

Finley, Robert B., Jr. ADVERSE EFFECTS ON BIRDS OF PHOSPHAMIDON APPLIED TO A MONTANA FOREST. J. Wildl. Mgmt. 29(3): 580-591. July 1965. WR 119: 5
[Denver Wildl. Res. Center, Denver, Colo.] Abstract: A field trial of Phosphamidon applied by aircraft in Montana against spruce budworm (Choristoneura fumiferana) had immediate adverse effects on birds. A 5,000-acre block of forested land was sprayed at the rate of 1 pound per acre. Some birds, including blue grouse (Dendragapus obscurus), were killed by the insecticide. Bird activity on the sprayed plot dropped to about one-quarter of the prespray level of activity while it increased on an unsprayed plot. Two sick blue grouse were caught by hand and held in captivity; one died and the other recovered. Analysis of grouse blood samples showed a marked inhibition of cholinesterase activity in the sick birds, followed by return of cholinesterase to normal in the surviving bird.

Johnston, G. C. PILOT TRIALS OF TWO ORGANOPHOSPHORUS COMPOUNDS IN VERTEBRATE PEST CONTROL. J. Wildl. Mgmt. 29(3): 591-597. July 1965. WR 119: 5
[Dept. Agr., Hobart, Tasmania.] Abstract: The properties of two toxic organophosphorus compounds were explored briefly to determine their suitability in field control operations against noxious avian and mammalian species by poisoning. The agents tested were hexaethyl tetraphosphate (HETP) and 2-methoxycarbonyl-1-methylvinyl dimethyl phosphate (Mevinphos). Present work indicates that Mevinphos may prove of value, especially in avian control operations carried out by trained, experienced personnel.

Moore, N. W., and J. O'G. Tatton. ORGANOCHLORINE INSECTICIDE RESIDUES IN THE EGGS OF SEA BIRDS. Nature 207(4992): 42-43. 3 July 1965. WR 119: 5
[Monks Wood Expt1. Sta., Abbots Ripton, Huntingdon, England.] "The following conclusions are drawn from the results: (a) Small amounts of organochlorine insecticides detected in marine life suggest that such residues may be widely distributed in British waters. (b) The total organochlorine insecticide residues found in the eggs of different sea birds are nearly all of the same order, most of them lying within the range of 0.4-3.5 p.p.m. (c) There are some indications that the eggs of birds which feed on large fish contain higher residues than those of species which feed on small fish or on invertebrates. (d) There is no evidence of an increase in contamination from 1963 to 1964, but some suggestion of a slight decrease. (e) Since there is little or no spraying of coastal waters with insecticides in Britain, the residues detected must derive either from the contamination of rivers or from aerial drift.... The narrow limits within which the majority of the egg residues falls appear to be characteristic of marine species; residues for terrestrial species tend to vary within much wider limits. This suggests that the eggs of sea birds may be useful indicator organisms for detecting general changes in environmental contamination by persistent pesticides. Since most sea birds range widely they would not be suitable indicators of local conditions."

Whitney, Craig Alan. DDT RESIDUES IN SOIL AND THE WHITE-FOOTED MOUSE, PEROMYSCUS LEUCOPUS (RAFINESQUE). M.S. thesis, Univ. Mich. 1964. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 5

Wurster, Doris H., Charles F. Wurster, Jr., and Walter N. Strickland. BIRD MORTALITY FOLLOWING DDT SPRAY FOR DUTCH ELM DISEASE. Ecology 46(4): 488-499, 5 figs. Early Summer 1965. WR 119: 6

[Dartmouth Coll., Hanover, N. H.] Abstract: Avian populations in Hanover, N. H., a town that has sprayed its elms with DDT for many years in an attempt to control Dutch elm disease, were compared with those in Norwich, Vt., a town 1 mile (1.6 km) west of Hanover that has never been sprayed. Hanover applied 1.9 lb DDT/acre (2.1 kg/hectare) in April 1963, then used Methoxychlor in April 1964. Population surveys were taken regularly during spring and early summer of these years, dead birds were collected in both towns, and 106 birds were analyzed for DDT, DDE, and DDD. Severe mortality of both resident and migrant birds occurred in Hanover during spring 1963, and the evidence implicates DDT as its cause. Robin loss was estimated at 70% of the resident population, or 350-400 individuals, but mortality among other species of widely varied feeding habits was also substantial. Feeding habits suggest that some birds acquired the toxicant by eating living insects carrying DDT, presenting the paradox of survival of the intended DDT victims, and death, instead, of insectivorous birds. Organ and whole bird analyses are presented and criteria for establishing cause of death are discussed. Most of the DDT had been converted to DDE and DDD, and residues were found in all organs analyzed. Robin mortality was reduced, but not eliminated following Methoxychlor application in 1964; these losses were believed caused by residual DDT in the soil. There was no evidence of DDT poisoning among other species in 1964, though the dead birds collected were not analyzed.

WILDLIFE--BIOMETRICS

Sokal, Robert R. STATISTICAL METHODS IN SYSTEMATICS. Biol. Rev. 40(3): 337-391, 5 figs. Aug. 1965. WR 119: 6

[Univ. Kans., Lawrence.]

WILDLIFE--TECHNIQUES

Dobrokhotov, B. P. [CHARACTERISTICS OF THE USE OF THE LINEAR TRANSECT METHOD FOR COUNTING BIRDS IN FOREST LANDSCAPES.] Ornitologiya 5: 579-585. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 6I158. Transl. of Russian abstr.] WR 119: 6

Le Cren, E. D. A NOTE ON THE HISTORY OF MARK-RECAPTURE POPULATION ESTIMATES. J. Animal Ecol. 34(2): 453-454. June 1965. WR 119: 6

[Freshwater Biol. Assoc., East Stoke, Wareham, Dorset, England.] A note on the "Petersen's Method" or "Lincoln Index." "Petersen has so much right to be considered one of the main founders not only of marking experiments but of population ecology itself that it would be appropriate to perpetuate his name in this way."

WILDLIFE--MANAGEMENT & RESEARCH, GENERAL

Anonymous. [STOCKS OF WILD GAME IN THE USSR AND COUNTING THEM.] Akad. Nauk SSSR (Moscow). 210 p., illus. 1963. Price 1 ruble 35 kopecks. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1964, no. 5I228K. In Russian.] WR 119: 6

Leonard, Justin W. MORAL, ETHICAL, AND FISCAL ASPECTS OF WILDLIFE MANAGEMENT. Trans. 30th N. Am. Wildl. Conf. p. 422-425. 1965. WR 119: 6

[Univ. Mich., Ann Arbor.] Various authorities are quoted in support of the author's premise that hunting and fishing are ethical forms of behavior at man's present state of cultural development. Evidence is then cited to show that sportsmen's license dollars still provide much of the opportunity for

non-consuming enjoyment of non-game wildlife: that wildlife managers have a real interest in fostering non-game, as well as game species: and that many non-hunters would welcome a medium by which they could contribute to the orderly development and support of wildlife areas. The author expresses the opinion that unless means are found for all natural history-oriented persons to present a united financial and idealogical front, decisions and developments affecting wild lands will pass to hands indifferent or hostile to their interests.--Auth. abstr.

Mathiak, Harold A. POTHOLE BLASTING FOR WILDLIFE. Wis. Conserv. Dept., Publ. 352. 31 p., illus. 1965. WR 119: 7

This bulletin has been prepared to give the details of how, where, and when to blast potholes. Emphasis is placed on those techniques which gave good results, on safety factors to be considered, and on practices to be avoided. Much more needs to be learned about the use of ammonium nitrate-fuel oil mixtures in blasting for maximum wildlife benefits, but this material is presented now to help those who wish to blast potholes in the near future. It is important that all legal requirements are met, and that only properly qualified persons undertake pothole blasting.--From intro.

Scott, Robert F. PROBLEMS OF MULTIFLORA ROSE SPREAD AND CONTROL. Trans. 30th N. Am. Wildl. Conf. p. 360-378, 1 fig. 1965. WR 119: 7

[Patuxent Wildl. Res. Center, Laurel, Md.] "The central thesis...[is] that multiflora has developed into an appreciable nuisance over much of its introduced range; and that conservation agencies have been reluctant to recognize or admit this, and embarrassingly slow to agree on how to cope with this development. It is not suggested that every planting has become a nuisance to every landowner, but that this is an increasingly common experience generally throughout the areas in which it has been planted in quantity and grown successfully."

Stanton, Frank W. WILDLIFE IN A MULTIPLE USE PROGRAM. Trans. 30th N. Am. Wildl. Conf. p. 305-310. 1965. WR 119: 7

[Bur. Land Mgmt., Portland, Oreg.] The Multiple Use Act (P.L. 88-607) authorizes classification of needed public lands for retention in Federal ownership. One recognized purpose is management for wildlife: to provide hunting and fishing grounds or to maintain habitat. Land exchanges to block up ownership will alleviate access problems. Principal hunting and fishing areas on Bureau of Land Management (BLM) lands are mapped. Important fish and game habitat on BLM has been mapped and is used in unit resource planning. An inventory of vegetation on deer winter ranges is in progress. Many forest and range development practices are beneficial to wildlife and the recreationist. The greatest potential for habitat improvement is through modification of established uses and development plans of related resources. Wildlife habitat improvement should be coordinated with wildlife agencies. Wildlife studies are conducted under contract with research people. As range forage production is increased, livestock grazing pressure will be reduced on preferred wildlife and recreation areas. Wildlife rarely demands exclusive use of land, but if several uses are to be compatible, all must be properly managed. The key word in BLM's wildlife program is cooperation. Wildlife management and development on public lands require coordination of all programs.--Auth. abstr.

Stokes, A. W., and D. F. Balph. THE RELATION OF ANIMAL BEHAVIOR TO WILDLIFE MANAGEMENT. Trans. 30th N. Am. Wildl. Conf. p. 401-410, 1 fig. 1965. WR 119: 7

[Utah State Univ., Logan.] The paper suggests how knowledge of animal behavior can help solve management problems in three areas: population studies, the inventory of wildlife and its harvest, and management of the animal and its habitat. Unbiased collecting of data of wildlife populations requires an understanding of behavior. This is implicit, but rarely observed, in the criterion of random sampling. Suggestions are made for improved survival of stocked animals, for measuring the effects of toxicants, and for manipulating movements of animals in the wild, all by behavioral means.--A. W. Stokes.

WILDLIFE--INTRODUCTIONS

Averin, Yu. V., and G. A. Uspenskii. [STATE OF KNOWLEDGE, RESEARCH PROBLEMS AND REESTABLISHMENT PROSPECTS RELATING TO THE BIRD AND MAMMAL FAUNA OF MOLDAVIA.] Izvest. Akad. Nauk Moldavsk. SSR 3: 57-65. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 19I233. Transl. of Russian abstr. Original with Moldavian summ.] WR 119: 8

Eglitis, V. K. [THE ACCLIMATIZATION OF ANIMALS AS A PART OF THE PROBLEM OF RECONSTRUCTION OF THE FAUNA OF AGRICULTURAL AREAS OF THE LATVIAN SSR.] In: (The acclimatization of animals in the USSR.) Akad. Nauk Kazakhsk. SSR (Alma-Ata). p. 37-38. 1963. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 4D63. Transl. of Russian abstr.] WR 119: 8

Salganskii, A. A. [THE ROLE OF THE DOMESTICATION OF ANIMALS IN ACCLIMATIZATION.] In: (The acclimatization of animals in the USSR.) Akad. Nauk Kazakhsk. SSR (Alma-Ata). p. 148-149. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I265. In Russian.] WR 119: 8

Sinel'nikov, A. M. [THE ACCLIMATIZATION OF MAMMALS AND FISHES IN TADZHIKISTAN.] In: (The acclimatization of animals in the USSR.) Akad. Nauk Kazakhsk. SSR (Alma-Ata). p. 164-166. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I264. In Russian.] WR 119: 8

Tatarinov, K. A. [WAYS OF ENRICHING THE FAUNA OF THE CARPATHIANS.] In: (The acclimatization of animals in the USSR.) Akad. Nauk Kazakhsk. SSR (Alma-Ata). p. 179-180. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I262. In Russian.] WR 119: 8

Treus, V. D. [A STUDY OF THE ACCLIMATIZATION OF ANIMALS IN THE ASKANIYA-NOVA PRESERVE.] In: (The acclimatization of animals in the USSR.) Akad. Nauk Kazakhsk. SSR (Alma-Ata). p. 187-189. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I266. In Russian.] WR 119: 8

Uspenskii, G. A. THE RESULTS OF AND PROSPECTS FOR THE INTRODUCTION OF NEW WILD ANIMALS AND BIRDS INTO MOLDAVIA.] In: (The acclimatization of animals in the USSR.) Akad. Nauk Kazakhsk. SSR (Alma-Ata). p. 194-196. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I263. In Russian.] WR 119: 8

WILDLIFE--FOOD HABITS & TECHNIQUES

Kendeigh, S. Charles, and George C. West. CALORIC VALUES OF PLANT SEEDS EATEN BY BIRDS. Ecology 46(4): 553-555. Early Summer 1965. WR 119: 8 [Univ. Ill., Champaign.] Seeds of Gramineae are relatively low in caloric content, those of Leguminosae and Malvaceae are somewhat higher, and those of Umbelliferae and Compositae are relatively high.

Meadows, Betty Jane. SEASONAL USE BY BIRDS AND MAMMALS OF A WILDLIFE FOOD AND COVER PLANTING. M.S. thesis, Purdue Univ. 1964. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 8

Rozhkov, A. S., and N. F. Reimers. [FEEDING BY BIRDS ON DENDROLIMUS SIBIRICUS TSCHTV. IN AREAS OF THE PEST'S CONCENTRATION.] Zool. Zhur. 37(11): 1749-1750. 1958. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1959, no. 71884. Transl. of Russian abstr. Original with English summ.] WR 119: 8

Schuster, Joseph L. ESTIMATING BROWSE FROM TWIG AND STEM MEASUREMENTS. J. Range Mgmt. 18(4): 220-222. July 1965. WR 119: 8 [Texas Technol. Coll., Lubbock.] Highlight: In upland forests of east Texas, total twig length was closely correlated with yield of deer browse plants, but the best predictor of yields was a combination of twig numbers and length.

WILDLIFE--PREDATION, CROP DAMAGE, CONTROL

Schelling, J. WILDSCHADENVERHUTUNG IM WEINBAU. [WILD GAME DAMAGE PREVENTION IN VINICULTURE.] Weinberg & Keller 10(5): 220-221. 1963. [From Biol. Abstr. 45(20), 1964. In German.] WR 119: 9

WETLANDS & WILDLIFE

Benson, Dirck, and Robert F. Perry. AN ACRE OF MARSH IS WORTH.... [N.Y.] Conservationist 19(6): 30-33, illus. June-July 1965. WR 119: 9

What is a marsh worth, and how can it be measured? Here, in a uniquely new approach, is an effort to assess the value of a marsh in terms universally understood--in dollars and cents.--A. W. Bromley.

FORESTLAND--FORESTRY & ECOLOGY

Sokolov, G. A. [THE INTERRELATION BETWEEN FORESTRY AND HUNTING AND THE PROBLEM OF THE COMPOSITE RECLAMATION OF THE ALPINE STONE PINE FORESTS OF SOUTHERN SIBERIA.] In: (Problems of zoological research in Siberia.) Knigoiszdat (Gorno-Altaisk). p. 216-217. 1962. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I284. Transl. of Russian abstr.] WR 119: 9

MAMMALS--GENERAL

Adams, Lowell. THE USE OF EXPLORATORY SURGERY TO MEASURE PRODUCTIVITY IN A POPULATION OF MAMMALS. Trans. 30th N. Am. Wildl. Conf. p. 205-211, 1 fig. 1965. WR 119: 9

[Carmel Valley, Calif.] Summary: The difficult task of determining the number of young born in an animal population can be facilitated by exploratory surgery to expose the uterus and count the uterine bulges or scars. A surgical technique (ether anesthetic, mid-line incision, mattress-stitch sutures) was used on 40 female California ground squirrels and the effects were compared with 41 unoperated squirrels. Survival was not significantly different in the two groups. It is concluded that the technique is satisfactory and safe to use, although further studies of the effects of nursing and uterine adhesions are pertinent. The mean number of bulges or scars observed was 8.6 per female.

Bookhout, Theodore A. FEEDING COACTIONS BETWEEN SNOWSHOE HARES AND WHITE-TAILED DEER IN NORTHERN MICHIGAN. Trans. 30th N. Am. Wildl. Conf. p. 321-335, 1 fig. 1965. WR 119: 9

[Ohio Coop. Wildl. Res. Unit, Columbus.] Summary: Feeding coactions between white-tailed deer and snowshoe hares were studied during two winters to determine the extent to which the animals competed for food. The investigation was made in a portion of a long-used deer yard. Approximately 134 deer were present in the 1959-60 winter and 167 in the 1960-61 winter. Estimated hare populations were 99, at the high of the cycle, and 31, after the cyclic decline had begun, for the same periods, respectively. Analyses of browsing showed that deer removed 5.8 to 6.8 percent of the total browse available in the first and second winters, respectively. At their cyclic high, hares removed about 19 percent as much browse as did deer on a per-acre basis. Overall, competition was not significant for any single food item available in quantity. For the entire study area, white cedar was the most heavily used species, but combined browsing removed only 4.0 to 4.5 percent of the available twigs in both winters. Hares appeared to play a decidedly minor role in the removal of browse from the deer yard under study.

Crandall, Dorothy L., and J. L. Chamberlain. VEGETATION AND SMALL MAMMAL POPULATIONS OF NATURAL DISTURBED PIEDMONT FORESTS. Va. J. Sci. 14(4): 199. 1963. [From Biol. Abstr. 45(24), 1964.] WR 119: 9

[Randolph-Macon Woman's Coll., Lynchburg, Va.] Abstract only.

Kostin, V. P. [THE ROLE OF CERTAIN MAMMALS IN BIOCENOSES OF USTYURT (PLATEAU BETWEEN THE CASPIAN AND ARAL SEAS).] In: (Zoogeography of the land.) (Tashkent). p. 146-148. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I307. In Russian.] WR 119: 10

Naumov, S. P. [SOME PROBLEMS OF THE GEOGRAPHY OF POPULATIONS OF COMMERCIALLY-IMPORTANT MAMMALS.] In: (Zoogeography of the land.) (Tashkent). p. 203. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I256. In Russian.] WR 119: 10

Shvarts, S. S. [ADAPTIVE PATHWAYS OF TERRESTRIAL VERTEBRATES TO CONDITIONS PREVAILING IN THEIR HABITATS IN THE SUBARCTIC. VOL. 1. MAMMALS.] Trudy Inst. Biol. Ural'sk Fil. Akad. Nauk SSSR 33: 1-133, illus. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I302. Transl. of Russian abstr.] WR 119: 10

Smith, Norman S., and Horace P. Ledger. A METHOD OF PREDICTING LIVEWEIGHT FROM DISSECTED LEG WEIGHT. J. Wildl. Mgmt. 29(3): 504-511, 5 figs. July 1965. WR 119: 10

[Wash. State Univ., Pullman.] Abstract: Ledger (1964) observed that leg weight was a constant of liveweight for 40 Brahma steers regardless of age or degree of fatness, and this paper reports on the liveweight/leg weight relationship for 248 African wild ungulates and 75 boran cattle, suggesting that this constant be used as a method of estimating liveweight. The correlation coefficients, leg weight as a percentage of liveweight, and standard deviations are given for each species. The data indicate that the weight of either foreleg or hindleg as a percentage of liveweight is constant and little affected by either sex, age, or degree of fatness for the nine species examined.

Storm, G. L., and K. P. Dauphin. A WIRE FERRET FOR USE IN STUDIES OF FOXES AND SKUNKS. J. Wildl. Mgmt. 29(3): 625-626, 1 fig. July 1965. WR 119: 10

[Ill. Nat. Hist. Surv., Urbana.] Abstract: A ferret made of 4-mm spring-steel wire, 22 feet long, was used to flush 30 foxes (Vulpes fulva) from dens during the period February 25, 1963 - May 11, 1964. The ferret also provided a means for determining whether the radio transmitters which had been attached to striped skunks (Mephitis mephitis) using ground dens were still in place.

MAMMALS--POPULATIONS, HOME RANGES, COMMUNITIES

Aliev, F. F. [CHANGES IN THE COMPOSITION AND NUMBER OF GAME MAMMALS DUE TO THE ACTIVITY OF MAN IN AZERBAIDZHAN.] In: (Zoogeography of the land.) (Tashkent). p. 9-10. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I264. In Russian.] WR 119: 10

Lebedev, A. D., and M. A. Savina. [THE MIGRATION OF RODENTS AND INSECTIVORES FROM NATURE INTO HUMAN CONSTRUCTIONS AND THE EPIDEMIOLOGICAL IMPORTANCE OF THIS PHENOMENON.] In: (Papers on the theory and special questions of scientific and technical information. Geography collection of the Institute of Scientific Information of the Academy of Sciences of the USSR.) (Moscow). p. 155-158. 1963. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 22I204. Transl. of Russian abstr.] WR 119: 10

Tester, John R., and Donald B. Siniff. ASPECTS OF ANIMAL MOVEMENT AND HOME RANGE DATA OBTAINED BY TELEMETRY. Trans. 30th N. Am. Wildl. Conf. p. 379-392, 5 figs. 1965. WR 119: 10

[Univ. Minn., Minneapolis.] Summary: This paper examines the concept of home range in terms of: (1) effect of sampling interval on distance traveled and area used, (2) center of activity and activity radius, and (3) distribution of telemetry fixes within a home range. The discussions are based on location data from an adult male raccoon during October and November, 1964 at the Cedar Creek Natural History Area in east-central Minnesota. We used an automatic

radio-tracking system to monitor movements and a digital computer to analyze the data. The selection of the time interval between fixes influences the total distance traveled computed as the straight-line distance between successive fixes. Difficulties in obtaining consecutive fixes and the problems of system errors are discussed in relation to choosing a sampling interval for studies where distance traveled is used for descriptive purposes. Development of the center of activity and the distribution of activity radii are considered. Home range is further analyzed by partitioning the area of usage into squares of arbitrary size and observing the frequency distribution of squares containing 1, 2, 3 . . . positions. This distribution is compared with the Poisson and the geometric, with the latter giving the best approximation. Applications of these aspects of movement and home range to problems of wildlife biology are discussed.

Webb, William L. SMALL MAMMAL POPULATIONS ON ISLANDS. Ecology 46(4): 479-488, 5 figs. Early Summer 1965. WR 119: 11

[Syracuse Univ., Syracuse, N. Y.] Numbers of species present on islands were greater than on the nearby mainland. Microtus were much more prevalent on islands than on the nearby mainland, and they occurred in forested habitat on islands more than on the mainland. "Short periods of removal trapping do not indicate species composition of the community because some abundant species are seldom captured in the early part of the trapping period.... Probability of capture is variable, and not consistently related to population density."

MAMMALS--FAUNAS AND MANUALS

Chang, Chieh, and Tsung-Yi Wang. [FAUNISTIC STUDIES OF MAMMALS OF THE CHINGHAI PROVINCE.] Acta Zool. Sinica 15(1): 125-138. 1963. [From Biol. Abstr. 45(20), 1964. In Chinese with English summ.] WR 119: 11

Imaizumi, Yoshinori. [COLOURED ILLUSTRATIONS OF THE MAMMALS OF JAPAN.] Hoikusha (Osaka). 196 p., 68 pls. 1960. [From J. Mammal. 46(3), 1965. In Japanese.] WR 119: 11

Lavov, M. A., V. G. Voronov, and E. I. Evdokimov. [GAME MAMMALS OF PARAMUSHIR AND SHUMSHU ISLANDS AND THE POSSIBILITY OF INTRODUCING OTHER SPECIES.] Trudy Sakhalinsk Kompleksnogo Nauchn.-Issled. Inst. 14: 39-47. 1963. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 21I208. Transl. of Russian abstr.] WR 119: 11

Nedeljak, František. [SMALL MAMMALS IN THE VIRGIN FORESTS OF RADIN.] Biologia (Bratislava) 17(2): 130-142. 1962. [From Biol. Abstr. 45(19), 1964. In Serbo-Croatian with Russian and German summ.] WR 119: 11

[Pedagog. Inst., Banska Bysrica, Czechoslovakia.]

Nekipelov, N. V. [THE DISTRIBUTION OF MAMMALS IN BIOCOENOSES OF THE SIBERIAN FORESTS.] Doklady Irkutsk Protivochmnogo Inst. 3: 118-124. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 10I231. Transl. of Russian abstr.] WR 119: 11

Nurgel'dyev, O. N. [MAMMALS OF SOUTHEAST KARA-KUM' AND CHANGES RELATED TO THE CONSTRUCTION OF THE KARA-KUM' CANAL.] Zool. Zhur. 46(8): 1232-1244. 1963. [From Biol. Abstr. 45(24), 1964. In Russian with English summ.] WR 119: 11

[Inst. Zool. & Parasitol., Acad. Sci. Turkmensk. SSR, Ashkabad, Turkmensk. SSR.]

Portenko, L. A., A. A. Kishchinskii, and F. B. Chernyavskii. [MAMMALS OF THE KORYATSKOE UPLAND. DATA ON THEIR DISTRIBUTION, POPULATION SIZE, BIOLOGY, AND ECONOMIC SIGNIFICANCE.] Akad. Nauk SSSR (Moscow-Leningrad). 131 p., illus. 1963. 80 kopecks. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 9I140K. Transl. of Russian abstr.] WR 119: 11

Prakash, Ishwar. TAXONOMICAL AND ECOLOGICAL ACCOUNT OF THE MAMMALS OF RAJASTHAN DESERT. Ann. Arid Zone 1(2): 142-161. Mar. 1963. [From J. Mammal. 46(3), 1965.] WR 119: 12

MAMMALS--PARASITES AND DISEASES

Cook, R. S., D. O. Trainer, W. C. Glazener, and B. D. Nassif. A SEROLOGICAL STUDY OF INFECTIOUS DISEASES OF WILD POPULATIONS IN SOUTH TEXAS. Trans. 30th N. Am. Wildl. Conf. p. 142-155, 1 fig. 1965. WR 119: 12

[Univ. Wis., Madison.] A serologic study of wild populations on the Welder Wildlife Refuge in south Texas was conducted during 1963 and 1964. The prevalence of disease in these populations was established so that an evaluation of their significance can be studied. The metabolic inhibition test was used to screen serums for reactors to eight viral agents: eastern (EEV), western (WEV), California (CEV), St. Louis (SLEV), and Venezuelan (VEV) encephalitis viruses, encephalomyocarditis (EMC), and vesicular stomatitis (VSV), both the New Jersey (VS-NJ) and Indiana (VS-I) strains. California encephalitis virus was active in the white-tailed deer (Odocoileus virginianus) herd; 58% of 108 adults and 87% of 165 fawns reacted. There was a seasonal variation in the number of deer reactors to CEV with high peaks occurring in the spring of both years. Results of the study suggest that deer are valuable indicators of CEV activity. Less than 10% of the deer tested reacted to WEV, SLEV, VEV or VSV; none reacted to EEV or EMC. Four of 16 cottontail rabbits (Sylvilagus floridanus), 3 of 5 raccoons (Procyon lotor), and 7 of 273 deer (Odocoileus virginianus) reacted to SLEV, an important zoonosis in Texas. Tests for bacterial and protozoan pathogens revealed 41 of 67 deer reacting to 1 or more of 7 leptospire serotypes. Leptospira autumnalis was most prevalent, 37% reacting; L. hardjo was second with 26% reacting. Leptospira pomona, a serotype reported to be important in cattle and deer, appeared in only 12% of the deer sampled. Tularemia reactors occurred in 14% of the 1963 fawns sampled and in 10% of the 1964 fawns. None of the deer tested reacted to brucellosis, anaplasmosis, or piroplasmosis.--R. S. Cook.

Scanlon, John E. KOREAN HEMORRHAGIC FEVER. Trans. 30th N. Am. Wildl. Conf. p. 167-174. 1965. WR 119: 12

[Walter Reed Army Med. Center, Washington, D. C.] Approximately 2,000 cases of epidemic hemorrhagic fever were reported among United States and United Nations troops in Korea from 1951 to 1964. Investigations on the epidemiology of the disease showed that outbreaks probably involve large populations of wild rodents and that transmission to man may be by arthropod bite, or through direct contact with rodent excreta. None of the investigators have been able to isolate the causative agent in experimental animals. The incidence of the disease declined when troops moved away from the endemic areas after the armistice in 1953.--Moufied A. Moussa.

Zarnowski, Eugeniusz. STAN BADAŃ NAD FAUNA PAROZYTÓW SSAKÓW W POLSCE. [THE STATE OF STUDIES OF THE FAUNA OF PARASITES OF MAMMALS IN POLAND.] Wiadomosci Parazytol. 9(4): 341-347. 1963. [From Biol. Abstr. 45(21), 1964. In Polish.] WR 119: 12

[Wyzsza Szkola Rolnicza, Lublin, Poland.]

SHREWS, MOLES, BATS

Ackerfors, Hans G. E. VINTERAKTIVA NABBMOSS UNDER SNÖN. [WINTER ACTIVE SHREWS IN THE SUBNIVEAN ENVIRONMENT.] Zool. Revy 26(1): 16-22, illus. 1964. [From Biol. Abstr. 45(24), 1964. In Swedish with English summ.] WR 119: 12

[Univ. Stockholm, Stockholm, Sweden.]

Corbet, G. B. THE GREY LONG-EARED BAT PLECOTUS AUSTRIACUS IN ENGLAND AND THE CHANNEL ISLANDS. Proc. Zool. Soc. London 143(3): 511-515. 5 Nov. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 13

Doremus, Henry M. HEART RATE, TEMPERATURE AND RESPIRATION RATE OF THE SHORT-TAILED SHREW IN CAPTIVITY. J. Mammal. 46(3): 424-425. Aug. 1965. WR 119: 13
[Univ. Vt., Burlington.] Abstract: The heart rate, respiration rate and body temperature of the short-tailed shrew were recorded from a colony of 52 shrews captured alive in the vicinity of Stowe, Vermont, and maintained in the laboratory. The mean heart rate of 20 shrews under pentobarbital sodium anesthesia was 760 beats per minute, and for 10 shrews under ether anesthesia it was 740 beats per minute. The mean body temperature of 25 shrews taken rectally at four different periods of the day was 38.5° C. The mean respiration rate for 5 shrews recorded during twelve separate runs under controlled conditions of temperature and oxygen was 164 per minute.

Horváth, Otto. ARBOREAL PREDATION ON BIRD'S NEST BY MASKED SHREW. J. Mammal. 46(3): 495. Aug. 1965. WR 119: 13
[Univ. British Columbia, Vancouver.] Sorex cinereus preying on the solitary vireo in British Columbia. "This observation proves that the shrew can climb slanting trunks of trees and even negotiate slender, horizontal branches. Also, it indicates that the shrew is a possible predator of the contents of arboreal nests of small birds."

Kristoffersson, Rolf. AN APPARATUS FOR RECORDING GENERAL ACTIVITY OF HEDGEHOGS. Ann. Acad. Sci. Fennicae, ser. A, (4, Biol.), 79: 1-7. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 13

Kristoffersson, Rolf, and Paavo Suomalainen. STUDIES ON THE PHYSIOLOGY OF THE HIBERNATING HEDGEHOG. 2. CHANGES OF BODY WEIGHT OF HIBERNATING AND NONHIBERNATING ANIMALS. Ann. Acad. Sci. Fennicae, ser. A, (4, Biol.), 76: 1-11. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 13

Kurskov, A. N. [DATA ON THE RINGING OF BATS IN BELORUSSIA.] Migratsii Zhivotnykh. Akad. Nauk SSSR (Moscow) 3: 21-25. 1962. [From Biol. Abstr. 45 (22), 1964, from Referat. Zhur., Biol., 1963, no. 16I266. Transl. of Russian abstr.] WR 119: 13
Records of 1093 bats of 10 spp. banded during 1948-1960.

Mankins, Jerome V., John R. Meyer, and Gordon Jarrell. RAT SNAKE PREYS ON BAT IN TOTAL DARKNESS. J. Mammal. 46(3): 496. Aug. 1965. WR 119: 13
[Texas A & M Univ., College Station.] Elaphe triaspis mutabilis preying on Glossophaga soricina in Cueva del Viejo, Honduras.

Moor, Ken, Francis Stay, and W. Glen Bradley. MEXICAN FREE-TAILED BAT AND WESTERN PIPISTRELLE FOUND ROOSTING IN SEDGES. J. Mammal. 46(3): 507. Aug. 1965. WR 119: 13
[Univ. Nev., Las Vegas.]

Negus, Norman C., and Harold A. Dundee. THE NEST OF SOREX LONGIROSTRIS. J. Mammal. 46(3): 495. Aug. 1965. WR 119: 13
[Tulane Univ., New Orleans, La.]

Novick, Alvin. ECHOLOCATION OF FLYING INSECTS BY THE BAT, CHILONYCTERIS PSILOTIS. Biol. Bull. 128(2): 297-314, 5 figs. Apr. 1965. WR 119: 13
[Yale Univ., New Haven, Conn.] Elements of the acoustic orientation of Chilonycteris psilotis during insect pursuits have been observed and analyzed. Such pursuits can be subdivided into search, approach, and terminal phases. The parallel parameters of Pteronotus and Chilonycteris parnellii pursuits, previously studied chilonycterine bats, are tabulated and compared with C. psilotis.--From summ.

Orr, Robert T. LONGEVITY IN PIZONYX VIVESI. J. Mammal. 46(3): 497. Aug. 1965. WR 119: 14
[Univ. San Francisco, San Francisco, Calif.] "Not less than 10 years of age at time of death and possibly considerably older."

Orr, Robert T., and Richard C. Banks. BATS FROM ISLANDS IN THE GULF OF CALIFORNIA. Proc. Calif. Acad. Sci., ser. 4, 30(10): 207-210. 31 Dec. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 14

Peterson, Randolph L. A REVIEW OF THE FLAT-HEADED BATS OF THE FAMILY MOLOSSIDAE FROM SOUTH AMERICA AND AFRICA. Royal Ontario Museum, Life Sciences, Contrib. no. 64. 32 p., 9 figs. 25 May 1965. $1.25. WR 119: 14
[Royal Ontario Museum, Univ. Toronto, Toronto, Canada.]

Peterson, Randolph L. A REVIEW OF THE BATS OF THE GENUS AMETRIDA, FAMILY PHYLLOSTOMIDAE. Royal Ontario Museum, Life Sciences, Contrib. no. 65. 13 p., 2 figs. 25 May 1965. 75 cents. WR 119: 14
[Royal Ontario Museum, Univ. Toronto, Toronto, Canada.]

Rood, J. P. OBSERVATIONS ON POPULATION STRUCTURE, REPRODUCTION AND MOLT OF THE SCILLY SHREW. J. Mammal. 46(3): 426-433, 2 figs. Aug. 1965. WR 119: 14
[Mich. State Univ., East Lansing.] Abstract: The life cycle of the Scilly shrew (Crocidura suaveolens cassiteridum) was analyzed from samples collected in nine trips to the Scilly Isles from January 1961 to August 1962. A considerable difference in the onset of reproduction occurred in the two years studied. In 1961 some females bred in January; young animals were trapped in March. About equal numbers of adults and juveniles were collected in May, and the latter were in a definite majority in July. Juvenile shrews were not trapped until June in 1962. In August they made up the majority of the sample. The mean embryo number of 31 pregnant females was 2.97, with a range from 1 to 5. Twenty-four per cent of the juvenile females trapped during the breeding season were pregnant or lactating. The testes in few juvenile males attained adult weights in the spring and summer. Testis regression was observed after July. Molting Crocidura were present in all but the November-December sample. Shrews showing the spring molt pattern were trapped from January to August, while those showing the fall pattern were collected from August to October. Adults were found to undergo a fall molt.

Rudyshin, M. P. [THE DISTRIBUTION OF THE SHREW IN THE CARPATHIANS OF THE UKRAINE.] Flora & Fauna Karpat. Akad. Nauk SSSR (Moscow) 2: 212-217. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1964, no. 11227. Transl. of Russian abstr.] WR 119: 14

Starrett, Andrew. THE BATS OF PUERTO RICO AND THE VIRGIN ISLANDS WITH A CHECKLIST AND KEYS FOR IDENTIFICATION. Caribbean J. Sci. 2(1): 1-7. 1962. [From Biol. Abstr. 45(22), 1964.] WR 119: 14
[Univ. S. Calif., Los Angeles.]

Stones, Robert C., and Jacob E. Wiebers. A REVIEW OF TEMPERATURE REGULATION IN BATS (CHIROPTERA). Am. Midland Nat. 24(1): 155-167. July 1965. WR 119: 14
[Mich. Technol. Univ., Houghton.] Abstract: The thermal regulatory responses of bats to ambient temperature have been reviewed. The various types of bats (hibernators, migrators, tropical) have some degree of thermal regulation, although the complexity of its nature and mechanism is still unknown.

Alkon, Philip U., and George H. Teidman. SUMMER ROADSIDE OBSERVATIONS OF MARKED COTTONTAIL RABBITS. N.Y. Fish & Game J. 12(1): 71-78. Jan. 1965. WR 119: 15

[N.Y. State Conservation Dept., Albany.] Abstract: An exploratory study was undertaken to evaluate box trapping and color marking cottontail rabbits for subsequent observation during early morning roadside counts; 25 rabbits were captured, ear marked with colored plastic strips, and released along 4 miles of survey route. During a following 10-day period, in which the route was run three times each morning, 59 observations were made of 18 marked animals. The marked animals were readily observable and the method appears feasible for more comprehensive study of cottontail activity. Some tentative findings relating to activity patterns are presented.

Demin, E. P. [SOME OBSERVATIONS ON THE EFFECT OF EXHAUST GASES FROM MOTOR VEHICLES ON MONGOL PIKA.] Izvest. Irkutsk. Nauchn.-Issled. Protivochumnogo Inst. Sibiri i Dal'nogo Vost. 24: 370. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 8I236. Transl. of Russian abstr.] WR 119: 15

Dodds, Donald G., and Hartford G. Thurber. SNOWSHOE HARE (LEPUS AMERICANUS STRUTHOPUS) HARVESTS ON LONG ISLAND, NOVA SCOTIA. Canadian Field-Nat. 79(2): 130-133. Apr.-June 1965. WR 119: 15

[Acadia Univ., Wolfville, Nova Scotia.] Summary: In the absence of any considerable natural predation and under relatively heavy harvesting the snowshoe hare population of Long Island, Nova Scotia has undergone a typical "10-year" fluctuation as depicted by total kill figures since 1950 and reports of populations prior to 1950. Peak kills occurred in 1939-40, 1951-52 and 1960-61 for an interval between peaks of 9-12 years. A low was reported in 1948-49 and was reflected in kill figures in 1956-57 for an interval of eight years between lows.

Dudley, Eugene Frederick. AGE STRUCTURE OF POPULATIONS OF MICHIGAN COTTONTAIL RABBITS, SYLVILAGUS FLORIDANUS, AS DETERMINED BY AN IMPROVED LENS WEIGHT TECHNIQUE FOR AGE DETERMINATION. Ph.D. thesis, Univ. Mich. 1963. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 15

Evans, Raymond D., Kenneth C. Sadler, Clinton H. Conaway, and Thomas S. Baskett. REGIONAL COMPARISONS OF COTTONTAIL REPRODUCTION IN MISSOURI. Am. Midland Nat. 74(1): 176-184, 3 figs. July 1965. WR 119: 15

[Nebr. Game, Forestation & Parks Comm., Sutton.] Abstract: First conceptions of the year for 196 female cottontails (Sylvilagus floridanus) collected in 1962 on five study areas in Missouri occurred from late January to late March. In all areas except one, most first conceptions centered about February 12-14. The latitudinal distances between areas were as great as 125 miles. Collections made in southwestern Mississippi, nearly 600 miles south of our northernmost area, also showed that the first wave of conceptions peaked about mid-February. Thus, a southerly location does not necessarily lead to earlier breeding by cottontails. Mean litter sizes (second litters only) were larger to the north, increasing from 3.5 (southwestern Mississippi) to 4.8 (southeastern Missouri) and 5.6 (northern Missouri). Specimens from southeastern Missouri showed that postpartum breeding was the rule. The length of the breeding season there would allow ample time for at least seven litters per female per year. Collections for the entire study in Missouri totalled 606 female cottontails.

Flux, John E. C. INCIDENCE OF OVARIAN TUMORS IN HARES IN NEW ZEALAND. J. Wildl. Mgmt. 29(3): 622-624, 1 fig. July 1965. WR 119: 15

[DSIR, Lower Hutt, New Zealand.] Abstract: In New Zealand, ovarian tumors were found in 5.6 percent of 588 adult female hares (Lepus europaeus) examined. This incidence is far higher than recorded for the same species elsewhere or, apparently, for any other wild mammal. It may indicate a hereditary genetic susceptibility in the population.

Matvievskii, A. S. [RABBIT REPELLENTS.] Zashchita Rast. Ot Vreditelei Boleznei 8(11): 23-24. 1963. [From Biol. Abstr. 45(24), 1964. In Russian.] WR 119: 16

Tests conducted from 1961-63 in the Ukrainian SSR proved the effectiveness of Karnofer, a Czechoslovakian preparation, as a rabbit repellent. It is equally effective when diluted with water (2:1 or 1:1) and smeared on or when sprayed on the trunks and lower branches of young fruit trees, and it is not toxic to the plants. The fruit trees remained untouched by the rabbits even during extremely severe winters when other food sources were covered by snow.

O'Farrell, Thomas P. HOME RANGE AND ECOLOGY OF SNOWSHOE HARES IN INTERIOR ALASKA. J. Mammal. 46(3): 406-418, 2 figs. Aug. 1965. WR 119: 16

[Oak Ridge Natl. Lab., Oak Ridge, Tenn.] Abstract: Snowshoe hares were live-trapped on a 160-acre study area near the University of Alaska, College, Alaska. In 3,702 trap-nights 151 different hares were captured 324 times for a trapping success of 8.8%. The mean home range size was 14.5 acres. There was no significant difference in home range between either males and females or males during the breeding season as compared to the remainder of the year. One female hare moved 12.5 miles. Animals appeared to be more "trap-shy" during the winter. Hares alternated in the use and disuse of runways depending upon snow quality. Two types of winter form and one summer form were utilized. The autumnal molt began during the first week in August and was completed by 1 November; the vernal molt commenced late in March and was completed by mid-June. The breeding season began in mid-March and ended in late July. A growth curve indicated that Alaskan hares attained adult weights in 90 to 120 days. Mortality was due partly to mammalian and avian predators and partly to "shock disease."

O'Farrell, Thomas P. THE RABBITS OF MIDDLETON ISLAND, ALASKA. J. Mammal. 46(3): 525-527. Aug. 1965. WR 119: 16

[Oak Ridge Natl. Lab., Oak Ridge, Tenn.] Three Oryctolagus cuniculus (1♂ : 3♀♀) were released on the island in the fall of 1954. An estimated 3671 were present in 1961.

Trapp, Gene R. SNOWSHOE HARES IN ALASKA. II. HOME RANGE AND ECOLOGY DURING AN EARLY POPULATION INCREASE. M.S. thesis, Univ. Alaska. 137 p. May 1962. WR 119: 16

A segment of a continuing study of snowshoe hares was conducted from May 1960 to November 1961, near College, Alaska. Objectives regarding home range, reproduction, behavior, age-determination criteria, and census methods were achieved by live-trapping and snaring. The Schnabel (Krumholz) formula and Petersen ratio for estimating population size were invalidated by differential trap response. The calendar graph, Webb strip-census, Hartman toe-clip ratio, pellet count, and road survey all proved poor or useless as used during this study for estimating hare abundance in this area. An increase in hare sign in marginal habitat between 1958 and 1961 indicated an increase in population density. Hare parasites noted were: Mosgovoyia pectinata, Taenia pisiformis, Dirofilaria scapiceps, Obeliscoides cuniculi, Protostrongylus boughtoni, Haemaphysalis leporispalustris, and Hoplopsyllus glacialis. Exclusive-boundary-strip home range decreased significantly at the 0.01 level from 14.5 acres at a low population density to 13.1 acres at a higher density. A juvenile female hare made the maximum dispersal movement noted, 1.6 miles. Snow collected on vegetation formed winter cover for hares. Hares used burrows occasionally. A hare's foot color cannot be used as an age criterion in Alaska in summer, since adults may have brown, white, or mottled hind feet. The epiphyseal groove appears to close at approximately seven months. Juvenile males can be recognized until December by a short, stubby penis, and juvenile females by a short, blunt vulva and lack of palpable teats. A combination of body weight and hind-foot length is recommended for determining the ages of juvenile hares. A lens weight of 160 mg can be used to separate hares less than a year old from older hares.--From abstr. Courtesy/ Frederick C. Dean.

Voronov, G. A. [BIOLOGY OF THE NORTHERN MOUSE-HARE IN THE TAIGA OF THE UPPER LENA RIVER AREA.] Zool. Zhur. 43(4): 619-621. 1964. [From Biol. Abstr. 45(23), 1964. In Russian with English summ.] WR 119: 17

[Siberian Br. Acad. Sci. USSR, Irkutsk, USSR.] Materials on distribution, number and nutrition of northern mouse-hare, Ochotona hyperborea.

Williams, C. E., and Albert L. Caskey. SOIL FERTILITY AND COTTONTAIL FECUNDITY IN SOUTHEASTERN MISSOURI. Am. Midland Nat. 74(1): 211-224, 5 figs. July 1965. WR 119: 17

[Southeast Mo. State Coll., Cape Girardeau.] Abstract: Cottontail rabbits (Sylvilagus floridanus) were collected to determine whether soils of contrasting fertility in small areas can cause variation in the size of cottontail litters. Relative fertilities of three soil series in Stoddard County in southeastern Missouri were rated. Rabbits from these soils were collected (with due consideration of home range) and the reproductive tracts of females pregnant with their first litter of the breeding season were used in testing for inter-soil differences in reproduction. Rabbits from the most fertile soil (Sharkey) had significantly larger litters than those from the least fertile (Calhoun). Analyses indicate that the observed difference in fecundity was the result of the contrast in soil fertility rather than differences in latitude, age of the mother, or stress. Anatomical materials were analyzed chemically to detect deficient mineral elements that might account for differences in rabbit fecundity. The concentrations of manganese in the liver, and calcium and phosphorus in the teeth did not differ significantly for collections from the two soils.

RODENTS--MISCELLANEOUS

Arata, Andrew A., Norman C. Negus, and Martha Sapp Downs. HISTOLOGY, DEVELOPMENT, AND INDIVIDUAL VARIATION OF COMPLEX MUROID BACULA. Tulane Studies Zool. 12(3): 51-64, 18 figs. 23 June 1965. WR 119: 17

[Tulane Univ., New Orleans, La.] "Microtus, Ondatra, Sigmodon, Mesocricetus, and Rattus."

Barsova, L. I., L. P. Brysova, and R. K. Kozhevnikova. [A NOTE ON THE IMPORTANCE OF MURINE RODENTS IN THE REPRODUCTION OF PINUS SIBIRICA.] Trudy Altaisk Gos. Zapovednika 3: 136-140. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 10I271. Transl. of Russian abstr.] WR 119: 17

Bashenina, N. V. [THE RELATIONSHIP OF THE GROWTH OF VOLES TO THE NUMBER OF INDIVIDUALS CONFINED TOGETHER.] In: (Problems of intraspecific relationships in organisms.) Tomsk Univ. (Tomsk). p. 167-169. 1962. [From Biol. Abstr. 45 (24), 1964, from Referat. Zhur., Biol., 1963, no. 15I313. Transl. of Russian abstr.] WR 119: 17

Bergström, Ulf. SKOGSLAMMELN FUNNEN I NORRA LAPPLAND. [THE WOOD LEMMING (MYOPUS SCHISTICOLOR LILLJEB.) IN NORTHERN LAPLAND.] Fauna & Flora (Uppsala) 1963(5-6): 191-195, illus. 1963. [From J. Mammal. 46(3), 1965. In Swedish.] WR 119: 17

Bibikov, D. I., V. S. Petrov, and V. P. Khrustselevskii. [CERTAIN ECOLOGICAL AND GEOGRAPHICAL RELATIONSHIPS OF PLAGUE-BEARING RODENTS.] Zool. Zhur. 42(9): 1306-1316. 1963. [From Biol. Abstr. 45(20), 1964. In Russian with English summ.] WR 119: 17

[Ctr. Asian Anti-Plague Res. Inst., Alma-Ata, Kazakh SSR.]

Brant, Daniel H., and J. Lee Kavanau. EXPLORATION AND MOVEMENT PATTERNS OF THE CANYON MOUSE PEROMYSCUS CRINITUS IN AN EXTENSIVE LABORATORY ENCLOSURE. Ecology 46(4): 452-461, 4 figs. Early Summer 1965. WR 119: 18

[Univ. Calif., Los Angeles.] Exploratory movements of Peromyscus crinitus within a maze were reduced by increase of exercise in an activity wheel. "These findings suggest that a dynamic balance between exploration and general activity determines the size of the movement patterns, and that the altering of environmental variables in extensive enclosures can be used to determine the extent to which each variable influences the movement patterns."

Caldwell, Larry D., and John B. Gentry. NATALITY IN PEROMYSCUS POLIONOTUS POPULATIONS. Am. Midland Nat. 74(1): 168-175, 1 fig. July 1965. WR 119: 18

[Central Mich. Univ., Mt. Pleasant.] Abstract: Populations of the old-field mouse (Peromyscus polionotus) were snap-trapped in fields of the Savannah River Project, South Carolina, from 1955 through 1961. Litter size of 172 pregnant females was 3.13 (SD = 0.86). Total length was chosen as the statistic best representative of body size. The 126-135 mm mature females were pregnant more frequently (34%) and had larger embryo counts (3.47, 1SE = 0.17) than the 98-115 mm mature females (21% and 2.95 ± 0.10). Breeding peaks occurred in spring and fall for all size classes with 50% less activity in the summer and virtually none in the winter. Summer litters were significantly smaller (2.76, 1SE = 0.19) than litters of spring and fall (3.48 ± 0.20). The observed effect of body size on natality could cause a 12% recruitment difference between natural populations.

Catts, E. P. HOST-PARASITE INTERRELATIONSHIPS IN RODENT BOT FLY INFECTIONS. Trans. 30th N. Am. Wildl. Conf. p. 184-196, 2 figs. 1965. WR 119: 18

[Univ. Del., Newark.] Summary: Studies were made of laboratory infections of various rodent species with cuterebrid bot flies (Diptera, Cuterebridae). The bot fly species studied showed a high degree of host specificity. Larvae of Cuterebra latifrons and C. approximata were introduced into various wild and laboratory rodent animals. Few larvae completed their development except when infecting their native host species. New World rodent hosts demonstrated a high degree of refractoriness to Cuterebra species infecting other rodents. Old World rodents were generally susceptible. Larval warbles were located in characteristic body regions on their native host, but were less localized on other rodents. Also, warble cysts were well defined in native hosts, but not in other rodents. Host weight changes indicated greater pathological effects on non-native hosts. Attempts to induce immunity in individual native hosts through repeated infections or heavy infective doses of larvae were not successful. During any one year, fluctuations in bot fly parasitism in nature appears to reflect the size of the bot fly population and seasonal behavior of the host rather than immune resistance in the host population. This interrelationship reflects adaptation of the parasite's behavior to that of specific rodent hosts and a high level of host tolerance to the effects of parasitic larval development.

Chew, Robert M., Robert G. Lindberg, and Page Hayden. CIRCADIAN RHYTHM OF METABOLIC RATE IN POCKET MICE. J. Mammal. 46(3): 477-494, 7 figs. Aug. 1965. WR 119: 18

[Northrop Space Lab., Hawthorne, Calif.] Abstract: Perognathus longimembris under a variety of conditions, demonstrated essentially a 24-hr rhythm in oxygen consumption. The amplitude, correlation with light cycle, and duration of periods of high and low metabolism varied. In September, mice provided with food and held at 22-24° C had a rhythm closely synchronized with a 12-hr light cycle (high in dark); mice were hypometabolic 12.5% of the days. In May, mice were more often out of synchrony and were hypometabolic 32.5% of the days. Without food at 22° C, mice became torpid every day; the first period of torpor began in the dark, and the rhythm of oxygen consumption was thereafter reversed. At 10° C without food, mice failed to arouse to a normal metabolic rate every day; sometimes they were deeply hypometabolic for 48-56 hr. A circadian rhythm of reduced amplitude continued, however, and arousals to

normal rate occurred approximately on multiples of 24 hr. Arousals continued to occur in mice without food at 10° C despite exposure to or state of animals under the following conditions: constant darkness with or without sound, air with 4.5% CO_2, obesity, 9 months' prior conditioning to 10° C, 1,400 R acute whole-body gamma radiation. Mice acclimatized to 10° C had the shortest periods of normal metabolism and obese mice the longest. In P. longimembris (mean wt 10.7 g), P. inornatus (14.6 g) and P. formosus (20.5 g) at 10° C without food, frequency and extent of hypometabolism varied inversely with body weight.

Clough, Garrett C. LEMMINGS AND POPULATION PROBLEMS. Am. Scientist 53 (2): 199-212, 6 figs. June 1965. WR 119: 19
[Univ. R. I., Kingston.]

Davis, D. H. S. WILD RODENTS AS LABORATORY ANIMALS AND THEIR CONTRIBUTION TO MEDICAL RESEARCH IN SOUTH AFRICA. South African J. Med. Sci. 28: 53-69. 1963. [From J. Mammal. 46(3), 1965.] WR 119: 19

Dul'keit, G. D. [THE PROBLEM OF DETERMINING THE POPULATION SIZE OF MURINE RODENTS.] In: (Problems of zoological investigation in Siberia.) Knigoizdat (Gorno-Altaisk). p. 79-81. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 16I219. Transl. of Russian abstr.] WR 119: 19

Ellström, K., and A. G. Johnels. IAKTTAGELSER PA SKOGSLÄMMEL INOM ORSA FINNMARK HÖSTEN 1962. [OBSERVATIONS ON THE WOOD LEMMING (MYOPUS SCHISTICOLOR LILLJEBORG).] Fauna & Flora 1963(4): 143-149, illus. 1963. [From J. Mammal. 46(3), 1965. In Swedish with English summ.] WR 119: 19

Frischknecht, Neil C. DEER MICE ON CRESTED WHEATGRASS RANGE. J. Mammal. 46(3): 529-530. Aug. 1965. WR 119: 19
[Intermountain Forest & Range Expt. Sta., Provo, Utah.]

Getz, Lowell L. HUMIDITIES IN VOLE RUNWAYS. Ecology 46(4): 548-551, 3 figs. Early Summer 1965. WR 119: 19
[Univ. Conn., Storrs.] Abstract: Relative and absolute humidities were measured in meadow vole runways in a wet marsh and a dry upland abandoned field. There were no significant differences in the humidity conditions between the two areas during the night. During the day the relative humidity of the marsh averaged only 6% higher than that of the abandoned field. The absolute humidity of the abandoned field was significantly higher than that of the marsh from 0800-1400 hr. The observed differences were not great enough to impose a significant stress upon the evaporative water losses of the meadow vole. A comparable set of humidity measurements was recorded in prairie vole runways. There was no significant difference between the humidity regimes of the meadow and prairie vole runways. Evaporative water loss as influenced by humidity does not appear to be a major factor influencing the local distribution of the meadow and prairie vole.

Getz, Lowell L. LONGEVITY OF TWO CAPTIVE PRAIRIE VOLES. J. Mammal. 46(3): 514. Aug. 1965. WR 119: 19
[Univ. Conn., Storrs.] A male Microtus ochrogaster survived 35 months and a female 27 months.

Glotov, I. N. [RODENT FAUNA OF THE KUIBYSHEV RAION OF THE NOVOSIBIRSK OBLAST.] In: (Problems of zoological research in Siberia.) Knigoizdat (Gorno-Altaisk). p. 49-51. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 15I266. Transl. of Russian abstr.] WR 119: 19

Goertz, John W. SEX, AGE AND WEIGHT VARIATION IN COTTON RATS. J. Mammal. 46(3): 471-477, 2 figs. Aug. 1965. WR 119: 20

[La. Polytech. Inst., Ruston.] Abstract: The sex ratios, weights and estimated ages of 1,461 different cotton rats (Sigmodon hispidus) were obtained by livetrapping and snaptrapping in Payne County, Oklahoma, between October 1959 and September 1961. When the population density was highest, there were slightly more females than males. During times of low population density, significantly more males than females were taken. This difference may have been caused by greater movement by the males, compared with the females, during periods of low population densities. During cold weather and under crowded conditions, cotton rats lost weight. When the population was low and the weather was mild, they gained weight through all seasons. Weights of individuals varied between 11 and 275 g. Age variation was greatest during the warm months of any one year, but was greater during a warm winter of one year compared with a cold winter of another year.

Golubev, P. D. [THE DISTRIBUTION OF AQUATIC VOLES IN STAVROPOL'KRAI AND A POSSIBLE CHANGE IN THE RANGE OF THIS SPECIES IN CONNECTION WITH THE PROVISION OF WATER FOR ARID AREAS.] Trudy Azerbaidzhansk Protibochumnoi Sta. 3: 191-204. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 21I195. Transl. of Russian abstr.] WR 119: 20

Hansen, Richard M. POCKET GOPHER DENSITY IN AN ENCLOSURE OF NATIVE HABITAT. J. Mammal. 46(3): 508-509. Aug. 1965. WR 119: 20

[Colo. Agr. Expt. Sta., Fort Collins.] "It appears that the 'carrying capacity' of the enclosure cannot be used to predict density on nearby habitats. Furthermore, these observations suggest to me that potentially more gophers could survive on rangelands on Black Mesa than are usually observed."

Harvey, Michael J., and Roger W. Barbour. HOME RANGE OF MICROTUS OCHROGASTER AS DETERMINED BY A MODIFIED MINIMUM AREA METHOD. J. Mammal. 46(3): 398-402, 2 figs. Aug. 1965. WR 119: 20

[Univ. Ky., Lexington.] Abstract: Home ranges of six Microtus ochrogaster were determined by radioisotopic tagging. A modified minimum area method of delineating home range was derived, using one-fourth of the range length as a standard to determine whether outside points in the range were to be connected directly. Home ranges as determined by the new method varied from 0.05 to 0.18 (averaging 0.11) acres for five males. A single female had a range of 0.02 acres. These figures are on the order of 50% of the range size determined by the minimum area method. Overlapping of home ranges occurs, and one individual showing a marked shift in home range was observed.

Hayne, Don W., and Daniel Q. Thompson. METHODS FOR ESTIMATING MICROTINE ABUNDANCE. Trans. 30th N. Am. Wildl. Conf. p. 393-400, 1 fig. 1965. WR 119: 20

[Inst. Statistics, N. C. State Univ., Raleigh.] This paper reports the independent evolution of similar but distinct index methods for estimating the abundance of voles over large areas in the Midwest. Each method used vole sign in carefully selected roadside grass areas as the index of abundance. Hayne's study was done in Michigan from 1946 to 1959. Thompson's work began in Wisconsin in 1960 and continues to date. The authors conclude that their methods allow meaningful estimations of the average population condition throughout a region.--D. Q. Thompson.

Higuchi, Sukesaburo. [POPULATION ECOLOGY OF SMALL MAMMALS AND ITS CONTROL (II). INTERRELATIONAL DISTRIBUTION OF RODENTS.] Bull. Govt. Forest Expt. Sta. (Japan) 158: 1-11., illus. 1963. [From Biol. Abstr. 45(23), 1964. In Japanese with English summ.] WR 119: 20

Hudson, Jack W. TEMPERATURE REGULATION AND TORPIDITY IN THE PYGMY MOUSE, BAIOMYS TAYLORI. Physiol. Zoöl. 38(3): 243-254, 10 figs. July 1965. WR 119: 20

[Rice Univ., Houston, Texas.]

Ismagilov, M. I., and Kh. K. Kadyrbaev. [CHANGES IN THE POPULATION SIZE AND TERRITORIAL DISTRIBUTION OF RODENTS IN PLOUGHED AREAS OF VIRGIN LANDS IN KAZAKHSTAN.] In: (Zoogeography of the land.) (Tashkent). p. 109-110. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I312. In Russian.] WR 119: 21

Johnson, Loyal J. POPULATION DYNAMICS OF DEERMICE AND CHIPMUNKS IN FOUR FOREST TYPES IN WESTERN MONTANA. M.S. thesis, Mont. State Univ. 1963. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 21

Khodashova, K. S. [EXPERIMENT ON THE USE OF A TERRITORIAL ECOLOGICAL SCHEME FOR THE INVESTIGATION OF RELATIONSHIPS GOVERNING THE HABITAT-GEOGRAPHICAL DISTRIBUTION OF RODENTS.] In: (Investigation of the geographical and natural resources of the animal and plant world.) Akad. Nauk SSSR (Moscow). p. 228-234. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 4I197. Transl. of Russian abstr.] WR 119: 21

Khrustselevskii, V. P., N. F. Chernonog, A. S. Sharets, and G. Ya. Dmitryuk. [TOPOGRAPHIC FEATURES OF THE DISTRIBUTION AND FLUCTUATIONS IN NUMBER OF GERBILS ON THE MUYUNKUM SANDS.] In: (Data from the 1963 scientific conference on natural foci and the prevention of plague.) (Alma-Ata). p. 240-242. 1963. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 16I275. In Russian.] WR 119: 21

Kirchberg, E. BERICHT ÜBER DIE RATTENBEKAMPFUNG IN DER STADT OBERHAUSEN (RHLD.) IM JAHRE 1962. [REPORT ON RAT CONTROL IN OBERHAUSEN (RHINELAND) IN THE YEAR 1962.] Pflanzenschutz Nachrichten Bayer 16(1): 37-48, map. 1963. [From Biol. Abstr. 45(22), 1964. In German.] WR 119: 21
[Lab. Med. Zool., Koblenz, Germany.]

Kirkpatrick, Ralph D. LITTER SIZE AND FETUS NUMBERS IN THE COTTON RAT. J. Mammal. 46(3): 514. Aug. 1965. WR 119: 21
[Okla. State Univ., Stillwater.] Two ♀ Sigmodon hispidus texianus contained 14 fetuses and a third ♀ contained 15 fetuses.

Kryzhanovskaya, V. V. [RODENTS OF THE OB' RIVER VALLEY AND THEIR EPIDEMIOLOGICAL AND ECONOMIC SIGNIFICANCE.] Trudy Tomskogo Univ. 152: 293-301. 1963. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1964, no. 9I251. Transl. of Russian abstr.] WR 119: 21

Kugel, D. I. [APPLICATION OF ELECTRIC CURRENT IN RODENT CONTROL.] Zashchita Rast. ot Vreditelei & Boleznei 8: 55. 1962. [From Biol. Abstr. 45 (20), 1964, from Referat. Zhur., Biol., 1963, no. 5I275. Transl. of Russian abstr.] WR 119: 21
In an attempt to control burrowing animals (muskrats, susliks, shrews, wild rabbits, etc.) use was made of an electric trap consisting of a 6-12 volt battery, a portable step-up transformer, a cutout, a lamp with a glow discharge of 350 volts, and 2 electrodes made of steel rods 80 cm in length. The electrodes were inserted into the ground or into floors of burrows at a distance of 50-100 cm from one another. Animals touching the electrodes were stunned by the electric current and ran from their burrows into the traps.

Leont'ev, A. N. [STUDYING MERIONES UNGUICALATUS BY THE METHOD OF MARKING.] Izvest. Irkutsk Nauchn.-Issled. Protivochumnogo Inst. Sibiri Dal'nogo Vost. 24: 296-302. 1962. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1963, no. 16I289. Transl. of Russian abstr.] WR 119: 21

Mukhamedkulov, M. M. [DISTRIBUTION OF SOME COMMERCIALLY IMPORTANT RODENTS IN THE BASIN OF THE SURKHAN RIVER.] In: (Zoogeography of the land.) (Tashkent). p. 200. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I268. In Russian.] WR 119: 21

Mullen, David Anthony. PHYSIOLOGIC CORRELATIONS WITH POPULATION DENSITY AND OTHER ENVIRONMENTAL FACTORS IN THE BROWN LEMMING, LEMMUS TRIMUCRONATUS. Ph.D. thesis, Univ. Calif. (Berkeley). 177 p. 1965. [From abstr. in Dissertation Abstr. 26(2), 1965.] WR 119: 22

A population of brown lemmings, Lemmus trimucronatus, was sampled in northern Alaska during two peak (1960 and 1963) and two intermediate phases (1961 and 1962) of its 3-4 year population cycle, for evidence of changes in physiologic characteristics regarded as indicators of density-induced population adjustment. Data from examinations of reproductive and blood physiology clearly distinguish lemmings of peak populations from those of less dense populations. The slightly increased reproductive effort and success in peak lemming populations were not significantly different from those of intermediate populations. Mammary development of pregnant lemmings and sexual maturation of juvenile lemmings were slightly retarded in the peak 1960 population. Weather, particularly variations in mean minimum daily temperatures, was found to be the most consistent environmental correlate believed to be affecting lemming reproduction and maturation. The failure of lemmings from declining population to exhibit physiologic characteristics usually associated with the General Adaptation Syndrome (i.e., reduced fecundity, hypoglycemia, eosinopenia) and the delay of the declines until after spring temperatures arrived do not substantiate "social stress" explanations for population cycles in lemmings.

Negus, Norman C., and Aelita J. Pinter. LITTER SIZES OF MICROTUS MONTANUS IN THE LABORATORY. J. Mammal. 46(3): 434-437. Aug. 1965. WR 119: 22

[Tulane Univ., New Orleans, La.] Abstract: Consecutive litter sizes of Microtus montanus are reported on the basis of 314 litters produced by 43 females in the laboratory. Irrespective of the age (subadult or adult) of females at mating, mean litter sizes increase from the first through the fifth litter. Then a decreasing trend ensues. Mean litter size of first litters in females that start breeding as subadults is 3.6, for those that start as adults--4.2. Mean litter size of fifth litters for subadults is 4.9, for adults 5.8. These differences between mean litter sizes of subadults and adults are statistically significant, indicating that in Microtus montanus litter size is affected by the age of the female at the onset of her reproductive activity. This observation on litter sizes is further supported by embryo counts collected from subadult and adult females in natural populations. The laboratory and field data are discussed in terms of their implications at the population level.

Neronov, V. M. [CHARACTERISTICS OF THE FORMATION OF RODENT POPULATIONS IN FIELDS OF GRAIN CROPS IN GORNO-ALTAISK.] In: (Zoogeography of the land.) (Tashkent). p. 204-205. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I314. In Russian.] WR 119: 22

Nikiforov, P. I., A. A. Zotova, D. F. Trakhanov, and G. G. Egorenko. [RESULTS OF SCIENTIFIC RESEARCH WORK BASED ON THE MASS EXTERMINATION OF MURINE RODENTS ON STATE AND COLLECTIVE FARMS IN THE TAMBOV OBLAST.] Trudy Vses. Nauchn.-Issled. Inst. Vet. Sanit. 22: 153-161. 1963. [From Biol. Abstr. 45 (24), 1964, from Referat. Zhur., Biol., 1964, no. 3I309. Transl. of Russian abstr.] WR 119: 22

Nurgel'dyev, O. N., and Kh. Babaev. [DISTRIBUTION OF RODENTS ON PASTURE LANDS IN SOUTHEASTERN TURKMENIA.] In: (Zoogeography of the land.) (Tashkent). p. 208-209. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I313. In Russian.] WR 119: 22

Panteleev, P. A. [BIOLOGICAL CYCLES IN THE LIVES OF WATER RATS.] In: (Problems of zoological investigation in Siberia.) Knigoizdat (Gorno-Altaisk). p. 188-189. 1962. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1963, no. 16I300. Transl. of Russian abstr.] WR 119: 22

Papanyan, S. B. [SEASONAL CHANGES IN THE RESPONSE OF SOME MICROTINAE SPECIES IN ARMENIA TO THE ACTION OF ENVIRONMENTAL TEMPERATURE.] Zool. Zhur. 42(8): 1245-1251, illus. 1963. [From Biol. Abstr. 45(23), 1964. In Russian with English summ.] WR 119: 23

[Zool. Inst., Acad. Sci. Armenian SSR, Erevan, Armenian SSR.] Some ecological and physiological features of Microtus arvalis, M. socialis, M. guentheri and Ellobius lutescens are presented in relation to the action of environmental temperature on these animals. Oxygen consumption at one and the same temperature in these species varies with the seasons.

Pitelka, Frank A. THE NUTRIENT-RECOVERY HYPOTHESIS FOR ARCTIC MICROTINE CYCLES. I. INTRODUCTION. In: (Grazing in Terrestrial and Marine Environments.) Blackwells Sci. Publ. p. 55-56. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 23

Prokof'eva, Z. V. [EXPANSION OF THE RANGE AND CHARACTERISTICS OF THE DYNAMICS OF THE POPULATION SIZE OF MICROTUS ARVALIS IN THE STEPPES OF THE CAUCASIAN FORELAND (STAVROPOL'KRAI).] In: (Zoogeography of the land.) (Tashkent). p. 238-240. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1964, no. 8I243. In Russian.] WR 119: 23

Rausch, Robert L. THE SPECIFIC STATUS OF THE NARROW-SKULLED VOLE (SUBGENUS STENOCRANIUS KASHCHENKO) IN NORTH AMERICA. Z. Säugetierk. 29(6): 343-358. Nov. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 23

Richens, V. B. AN EVALUATION OF CONTROL ON THE WASATCH POCKET GOPHER. J. Wildl. Mgmt. 29(3): 413-425, 5 figs. July 1965. WR 119: 23

[Bur. Sport Fisheries & Wildl., Univ. Calif., Davis.] Abstract: Pocket gopher (Thomomys talpoides) control was applied to areas of subalpine range of northern Utah over 1-, 2-, 3-, and 4-year periods. Nearby range, also infested with pocket gophers, was not treated for gopher control; areas of this range were used as checks. The control consisted of hand-baiting gopher tunnels with whole oats treated with 0.125 percent sodium fluoroacetate (Compound 1080). A gopher population-per-acre index was determined for each of five treatments (0, 1, 2, 3, and 4 years' control) by saturation trapping on trap blocks for a 3-day period. The gopher population was reduced about half by the first year's control. Additional years of control, however, failed to significantly reduce the gopher population further. Only tunnels under new mounds were treated in the control program. These studies show that treatment of tunnels under old mounds, as well as new, could have increased the effectiveness of control as much as 20-30 percent. Periodic and cumulative mound counts showed good positive correlations ($r = 0.83$; $r = 0.82$) with the gopher population index, but counts of the numbers of mounds formed in a 72-hour period did not ($r = 0.41$). Winter cast counts in early July showed a correlation of 0.80 with the gopher population index. The gopher population index had a good correlation with bulbed plant abundance, but was poorly correlated with perennial plant yield and annual plant abundance. The cost of gopher control averaged $1.13 and $0.51 per acre per year for initial treatment and retreatment, respectively.

Sadleir, R. M. F. S. THE RELATIONSHIP BETWEEN AGONISTIC BEHAVIOUR AND POPULATION CHANGES IN THE DEERMOUSE, PEROMYSCUS MANICULATUS (WAGNER). J. Animal Ecol. 34(2): 331-352, 5 figs. June 1965. WR 119: 23

[Wellcome Inst. Comp. Physiol., Zool. Soc. London, Regent's Park, London, England.] Summary: 1. This study of the population changes of Peromyscus maniculatus was made in Douglas fir forest, Point Grey, Vancouver, British Columbia from March 1962 to October 1963. 2. Monthly live trappings confirmed previous reports that populations remain relatively stable through the summer, increase suddenly to a peak in autumn, and then decline through the winter. In some of the populations there were sudden drops in numbers. 3. Male Peromyscus caught each month were subjected to behaviour tests which showed a rise in aggression during the breeding season. The sudden drops in

numbers coincided with increases in aggression of the males sampled. Thus, the drops may have been caused by behavioural upsets in the populations as the breeding season began. 4. Considerable juvenile mortality occurred during the summer breeding season and juvenile survival was found to be much better on an area from which adults had been removed. 5. This behavioural relationship between adult and juvenile Peromyscus was investigated in a laboratory maze. It was shown that resident adults were usually extremely antagonistic to intrusive juveniles, which either died or were restricted to small areas of the maze. 6. It was concluded that changes in survival and recruitment of young during the breeding season could be explained by changes in aggressive behaviour of the adults.

Schultz, Arnold M. THE NUTRIENT-RECOVERY HYPOTHESIS FOR ARCTIC MICROTINE CYCLES. II. ECOSYSTEM VARIABLES IN RELATION TO ARCTIC MICROTINE CYCLES. In: (Grazing in Terrestrial and Marine Environments.) Blackwells Sci. Publ. p. 57-68. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 24

Shkilev, V. V. [INFORMATION ON THE REPRODUCTION OF CRICETULUS BARABENSIS IN THE PRIMORSKII KRAI (SOVIET FAR EAST).] Doklady Irkutsk Protivochmnogo Inst. 3: 125-127. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 20I275. Transl. of Russian abstr.] WR 119: 24

Shvetsov, Yu. G. [FEEDING HABITS OF MICROTUS MAXIMOVICZII SCH. IN THE SELENGA RIVER DELTA.] Zool. Zhur. 42(9): 1420-1423. 1963. [From Biol. Abstr. 45(24), 1964. In Russian with English summ.] WR 119: 24
[Irkutsk Agr. Inst., Irkutsk, USSR.]

Slastenina, E. S. [THE ECOLOGY AND HARMFUL ACTIVITY OF ELLOBIUS TALPINUS ON THE FIELDS AND PASTURES OF KIRGIZIYA.] Uch. Zap. Tyumenskogo Gos. Pedagog. Inst. 24(2): 3-64. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 4I294. Transl. of Russian abstr.] WR 119: 24

Solomonov, N. G. [THE ECOLOGY OF THE WATER RAT IN CENTRAL YAKUTIYA.] In: (Problems of zoological investigation in Siberia.) Knigoizdat (Gorno-Altaisk). p. 219-221. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 16I301. Transl. of Russian abstr.] WR 119: 24

Tambotov, A. K. [THE FIELD MOUSE (APODEMUS AGRARIUS)--A PEST OF CORN SOWINGS.] Uch. Zap. Kabardino-Balkarsk. Univ. Ser. Biol. 16: 121-123. 1962. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1963, no. 23I245. Transl. of Russian abstr.] WR 119: 24
The greatest damage to corn in the Kabardino-Balkarian ASSR is done by the field mouse. In May 1961, 89% of the mice were killed with corn bait containing 12% zinc phosphide spread at 4 kg/ha.

Thompson, Daniel Q. FOOD PREFERENCES OF THE MEADOW VOLE (MICROTUS PENNSYLVANICUS) IN RELATION TO HABITAT AFFINITIES. Am. Midland Nat. 74(1): 76-86, 1 fig. July 1965. WR 119: 24
[N. Y. Coop. Wildl. Res. Unit, Ithaca.] Abstract: The food preferences of the meadow vole (Microtus pennsylvanicus) were tested against an array of 30 plant species from a wide variety of habitats; eight of the 30 were introduced species. In the food-preference sequence established by this experiment, forage crops and adventive plants characteristic of the old-field habitat occupied eight of the top ten ranks. White clover (Trifolium repens) was the most preferred plant; alfalfa (Medicago sativa) and red clover (Trifolium pratense) were next in rank, followed by dandelion (Taraxacum officinale) and horsetail (Equisetum arvense). Four of the remaining five ranks among the first ten plants were occupied by adventive grasses. The 12th to 20th positions were occupied by native monocotyledonous plants. Native boreal and bog plants occupied the last eight positions.

Timofeeva, A. A. [SOME OBSERVATIONS ON RODENT DISTRIBUTION BY HABITAT IN SOUTHERN SAKHALIN.] Izvest. Irkutsk. Nauchn.-Issled. Protivochumnogo Inst. Sibiri Dal'nogo Vost. 24: 261-271. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 9I245. Transl. of Russian abstr.] WR 119: 25

Tkachenko, V. I. [FLUCTUATIONS IN THE NUMBER OF MURINE RODENTS IN THE FORESTS OF THE TEBERDINSK FOREST PRESERVE.] Trudy Teberdinsk. Gos. Zapovednika 4: 167-181. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 14I287. Transl. of Russian abstr.] WR 119: 25

Trojan, P., and B. Wojciechowska. NEW METHOD OF ESTIMATION OF RODENT RESIDENCE IN INVESTIGATIONS PERFORMED BY THE CMR TECHNIQUE. Bull. Acad. Polon. Sci. Ser. Sci. Biol. 11(8): 375-378. 1963. [From Biol. Abstr. 45(24), 1964. In English with Russian summ.] WR 119: 25
[Inst. Ecol., Polish Acad. Sci., Zaktad, Poland.]

Wilbur, Charles G., and Richard D. Gilchrist. ORGAN WEIGHT : BODY WEIGHT RATIOS IN THE MONGOLIAN GERBIL, MERIONES UNGUICULATUS. Chesapeake Sci. 6(2): 109-114. June 1965. WR 119: 25
[Univ. Del., Newark.]

Wood, John E. RESPONSE OF RODENT POPULATIONS TO CONTROLS. J. Wildl. Mgmt. 29(3): 425-438, 1 fig. July 1965. WR 119: 25
[N. Mex. State Univ., University Park.] Abstract: A study of the response of rodent populations to poisoning was conducted on the desert grassland range of southern New Mexico. Strychnine and 1080-treated grain was distributed on a 12-section area, each section receiving one poison in one of six distributional patterns. The 1080 poison, scattered on a 100- x 200-foot grid, was the most economical (3.5 cents per acre), and the 1080 poison gave slightly better controls at both the 1-month and 1-year checks. The densities of the five major species in both the poison area and check areas fluctuated independently, giving a decided change in the species composition from year to year. Though the species composition changed, the rodent biomass remained fairly constant on the unpoisoned area. On the poisoned area, 2 years after the poisoning, the total rodent biomass was only slightly over one-half the biomass of the uncontrolled population.

RATTUS AND MUS

Beveridge, A. E., and M. J. Daniel. OBSERVATIONS ON A HIGH POPULATION OF BROWN RATS (RATTUS NORVEGICUS BERKENHOUT 1767) ON MOKOIA ISLAND, LAKE ROTORUA. New Zealand J. Sci. 8(2): 174-189, 5 figs. June 1965. WR 119: 25
[New Zealand Forest Serv., Rotorua.]

Karnaukhova, N. G., Yu. I. Mirotvortsev, and M. S. Devyatkina. [ABUNDANCE OF RODENTS ON SEAGOING VESSELS AND IN HARBOR STRUCTURES OF VLADIVOSTOK AND NAKHODKA.] Doklady Irkutsk. Protivochmnogo Inst. 4: 145-148. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 19I228. Transl. of Russian abstr.] WR 119: 25

SCIURIDS

Adams, Lowell, Edward G. Biglieri, and Howard A. Bern. THE ADRENAL CORTEX AND ITS HORMONES IN THE CALIFORNIA GROUND SQUIRREL, SPERMOPHILUS BEECHEYI. J. Mammal. 46(3): 446-450, 1 pl. Aug. 1965. WR 119: 25
[Univ. Calif., San Francisco.] Abstract: Adrenocortical hormones of Spermophilus beecheyi were determined in gland incubates and in plasma. Cortisol, corticosterone and aldosterone were found in that order of decreasing abundance in both gland incubates and plasma. Adrenal gland histology is essentially like that of S. beldingi (McKeever, 1963). Adrenal glands from males weigh more than those from females.

Bailey, E. D. THE INFLUENCE OF SOCIAL INTERACTION AND SEASON ON WEIGHT CHANGE IN WOODCHUCKS. J. Mammal. 46(3): 438-445, 2 figs. Aug. 1965. WR 119: 26

[Univ. Guelph, Guelph, Ontario.] Abstract: Sociability and social interaction play an important role in weight changes in woodchucks (Marmota monax). Woodchucks were visually isolated in outdoor pens and compared with woodchucks that were allowed visual contact. Visual contact between woodchucks influences weight change in a positive direction and directs the general activity patterns of these animals. The relative effect of visual contact decreases linearly from February to December and is correlated with season. Social interaction and sociability exert maximal influence in spring and minimal in autumn.

Barkalow, F. S., Jr., and R. F. Soots, Jr. AN ANALYSIS OF THE EFFECT OF ARTIFICIAL NEST BOXES ON A GRAY SQUIRREL POPULATION. Trans. 30th N. Am. Wildl. Conf. p. 349-360, 4 figs. 1965. WR 119: 26

[N. C. State Univ., Raleigh.] During the eight and one-half year study, 2242 individual gray squirrels captured in live traps, nest boxes, and leaf nests were handled from one to 30 times each, and of these, 1190 were of known age (±1 week). The combined index values clearly indicate a higher population of squirrels on the boxed plots. It is suggested that the higher populations on the boxed areas may be explained by the increased survival of the nest box young and adults on the boxed areas. Our observations indicate that the increased survival of both the young and adults is probably due to the greater protection from natural enemies, accidents, and weather furnished by the boxes. The boxes may also reduce the dispersal rate of animals from the treated areas as well as holding dispersing individuals which come from outside the area. It is our belief that under the conditions of the experiment, the index values reflect population differences in each census period. It is our further belief that the population differences between the boxed and unboxed plots may be attributed to the influence of the artificial nest boxes. It is concluded, therefore, that the nest boxes did increase the carrying capacity of each of the treated plots.--From summ.

Brink, Charles Holden. SPRUCE SEED AS A FOOD OF THE SQUIRRELS TAMIASCIURUS HUDSONICUS AND GLAUCOMYS SABRINUS IN INTERIOR ALASKA. M.S. thesis, Univ. Alaska. 73 p. May 1964. WR 119: 26

Red squirrels (Tamiasciurus hudsonicus) were censused from July through October, 1962, on a 27-acre, white spruce forested, island in the Tanana River. Time-area counts followed by an attempted complete kill produced an estimate of 0.74 squirrels/acre. This low density is believed to be the result of the failure of the cone crop on the island that fall. Observations indicate that a modification of the Schnabel method employing recorded red squirrel territorial and aggressive calls might be effective for future censuses. Feeding trials revealed that red squirrels can survive for 3 weeks (possibly longer) on nothing but white spruce seed and under such conditions consume about 144 cones per day per squirrel. Flying squirrels (Glaucomys sabrinus) do poorly on white spruce seed and, unlike red squirrels, probably do not consume large quantities of it in the wild. Red squirrels lose weight rapidly when given nothing but black spruce cones and show a marked preference for white spruce cones over black spruce cones, possibly because of the larger size and higher caloric content of white spruce seed. Red squirrels scatter about one sound seed for every two cones they strip, but it is unlikely that many of these scattered seeds successfully germinate.--From abstr. Courtesy/ Frederick C. Dean.

Goertz, John W. LATE SUMMER BREEDING OF FLYING SQUIRRELS. J. Mammal. 46 (3): 510. Aug. 1965. WR 119: 26

[La. Polytech. Inst., Ruston.] In La. "breeding occurs throughout August and...young may be born as late as the beginning of October."

Ismagilov, M. I., and Kh. K. Kydyrbaev. [THE EFFECT OF PLOWING UP VIRGIN LAND ON THE DISTRIBUTION AND POPULATION SIZE OF THE BOBAC; ACTION OF THE BOBAC ON GRAIN CROPS.] Trudy Inst. Zool. Akad. Kazakhsk. SSR 20: 145-152. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I219. Transl. of Russian abstr.] WR 119: 27

Kapitonov, V. I. [FACTORS WHICH LIMIT THE SPREAD OF MARMOTA CAMTSCHATICA PALLAS IN THE EXTREME NORTHEASTERN REGION OF ASIA.] In: (Zoogeography of the land.) (Tashkent). p. 121-122. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I274. In Russian.] WR 119: 27

Khrustalev, S. [SQUIRREL IN THE NORTHERN CAUCASUS.] Okhota & Okhotnich'e Khoz. 8: 19-20. 1963. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1964, no. 6I317. Transl. of Russian abstr.] WR 119: 27

Lampio, Teppo. SEX RATIOS AND THE FACTORS CONTRIBUTING TO THEM IN THE SQUIRREL, SCIURUS VULGARIS, IN FINLAND. I. Finnish Game Res. 25. 90 p., 25 figs. 1965. WR 119: 27

An overall sex ratio of 50.8 ± 0.2% ♂♂ was obtained for the 196,366 squirrels examined during 1946-1963. Among young squirrels a constant excess of males was found, the average juvenile sex ratio being 57.1 ± 2.0%. A linear association between sex and age ratios (numbers of adult females) was suggested. The average number of adult females, 13.4 ± 0.3% of the population (roughly 26% of adults) was observed to correspond to 50.4% of males. Slightly more males than females were observed to take part in migrations, whereas relatively more females remained behind in the home area. In addition to mixing the sex ratios of different populations, migrations were observed to change the ratios more in favor of females.--From summ.

Neal, Bobby J. SEASONAL CHANGES IN BODY WEIGHTS, FAT DEPOSITIONS, ADRENAL GLANDS AND TEMPERATURES OF CITELLUS TERETICAUDUS AND CITELLUS HARRISII (RODENTIA). Southwestern Nat. 10(3): 156-166. 1 July 1965. WR 119: 27

[Phoenix Coll., Phoenix, Ariz.] Abstract: Seasonal changes in body weights, fat depositions, adrenal glands and temperatures of ground squirrels under natural conditions were obtained in two sympatric species. A hibernator, Citellus tereticaudus, was compared with a non-hibernator, Citellus harrisii. C. tereticaudus exhibited characteristics of a hibernator such as fat deposition and rapid weight gains when given an unlimited food supply. In the later phases of the study, captive C. tereticaudus were observed in deep hibernation and animals in the field retired below ground for extended periods of time presumably in a hibernating state. C. harrisii stored little body fat even when supplied with abundant food in captivity and exhibited little of the rapid gains evidenced by C. tereticaudus. C. harrisii was found active above ground in each month of the year and showed no hibernation behavior in captivity.

Nikitin, V. P., N. A. Zuichenko, and S. M. Chernikin. [THE ECOLOGY OF CITELLUS FULVUS IN WESTERN TURKMENIA.] Izvest. Akad. Nauk Turkmensk. SSR Ser. Biol. Nauk 6: 58-65. 1962. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 22I206. Transl. of Russian abstr.] WR 119: 27

Ol'kova, N. V. [ECOLOGICAL FEATURES OF CITELLUS UNDULATUS RELATED TO ITS EPIDEMIOLOGICAL AND ECONOMIC IMPORTANCE.] Doklady Irkutsk. Protivochmnogo Inst. 4: 120-127. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 22I205. Transl. of Russian abstr.] WR 119: 27

Smith, Robert Leo. THE GRAY SQUIRREL. W. Va. Conserv. 29(5): 8-13, illus. July 1965. WR 119: 27

[W. Va. Univ., Morgantown.] Checking station data for the period 1959-1964 are summarized. Hunting success was poorest on opening days that were wet or very dry and warm. Gray squirrel populations increased steadily during the period. First of a 2-part article.

Smith, Robert L[eo]. GRAY SQUIRREL 'HOUSING PROJECT'. W. Va. Conserv. 29 (6): 18-22, illus. Aug. 1965. WR 119: 28
[W. Va. Univ., Morgantown.] In the second and final part of this report a new phase of the study which concerns the effectiveness of nest boxes as a means of increasing gray squirrel populations in pole timber is discussed.

Surdacki, Stanisław. ZAGADNIENIE OCHRONY SUSŁA W LUBELSZCZYŹNIE. [PROTECTION OF THE SUSLIK CITELLUS SUSLICUS (GUELD.) IN THE DISTRICT OF LUBLIN.] Chrońmy Przyrode Ojczysta 18(6): 13-16, map. 1962. [From Biol. Abstr. 45(22), 1964. In Polish.] WR 119: 28
[Zool. Museum M. Curie-Sklodowska Univ., Lublin, Poland.]

Verbeek, Nicolaas A. M. PREDATION BY BADGER ON YELLOW-BELLIED MARMOT IN WYOMING. J. Mammal. 46(3): 506. Aug. 1965. WR 119: 28
[Univ. Mont., Missoula.]

Zimny, Marilyn L. THIRTEEN-LINED GROUND SQUIRRELS BORN IN CAPTIVITY. J. Mammal. 46(3): 521-522. Aug. 1965. WR 119: 28
[La. State Univ., New Orleans.] Data on 28 litters of Citellus tridecimlineatus.

BEAVER

Bakeev, Yu. N. [EXPERIENCE IN REACCLIMATIZING THE BEAVER IN SHALINSK RAION, SVERDLOVSK OBLAST.] Sbornik Nauchn.-Tekh. Inform. Vses. Nauchn.-Issled. Inst. Zhivotnogo Syr'ya Pushniny 5(8): 66-77. 1963. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I264. Transl. of Russian abstr.] WR 119: 28

Koryakov, B. F. [THE BEAVER IN THE URALS AND RENEWING ITS STOCKS.] In: (Problems of zoological research in Siberia.) Knigoizdat (Gorno-Altaisk). p. 138-140. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I259. Transl. of Russian abstr.] WR 119: 28

Murray, David F. SOME FACTORS AFFECTING THE PRODUCTION AND HARVEST OF BEAVER IN THE UPPER TANANA RIVER, ALASKA. M.S. thesis, Univ. Alaska. 103 p. May 1961. WR 119: 28
Analysis of aerial counts showed that the distribution of the beaver is dependent upon the quality of the habitat, and that the concentrated trapping around Indian villages has not had detrimental effects upon the beaver population. With the present beaver population the harvest could be increased, but not to the point where all of the trappers could fill their catch limit. It is recommended that the catch limit be increased to 20 per trapper and the season be further extended into the spring. Trappers would benefit from an education program in more efficient trapping techniques and pelt care.--From abstr. Courtesy/ Frederick C. Dean.

Tsetsevinskii, L. M. [BEAVERS IN THE SOUTHERN URALS.] Sbornik Nauchn.-Tekh. Inform. Vses. Nauchn.-Issled. Inst. Zhivotnogo Syr'ya Pushniny 5(8): 77-81. 1963. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I265. Transl. of Russian abstr.] WR 119: 28

Yazan, Yu. P. [THE INCREASE IN THE BEAVER POPULATION OF THE UPPER PECHORA RIVER BASIN.] Sbornik Nauchn.-Tekh. Inform. Vses. Nauchn.-Issled. Inst. Zhivotnogo Syr'ya Pushniny 5(8): 81-85. 1963. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I266. Transl. of Russian abstr.] WR 119: 28

Zhdanov, A. P. [BEAVER COLONIZATION OF RESERVOIRS IN THE VASYUGAN RIVER SYSTEM.] In: (Problems of zoological studies in Siberia.) Knigoizdat (Gorno-Altaisk). p. 83-85. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 11I255. Transl. of Russian abstr.] WR 119: 29

MUSKRAT AND NUTRIA

Polushina, N. A. [THE DISTRIBUTION OF MUSKRATS (ONDATRA ZIBETHICA) IN THE W. UKRAINE.] In: (Zoogeography of the land.) (Tashkent). p. 228-229. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 6I260. In Russian.] WR 119: 29

Seabloom, Robert W., and James R. Beer. OBSERVATIONS OF A MUSKRAT (ONDATRA ZIBETHICA CINNAMOMINUS) POPULATION DECLINE IN NORTH DAKOTA. Proc. N. Dak. Acad. Sci. 17: 66-70, illus. 1963. [From Biol. Abstr. 45(24), 1964.] WR 119: 29
[Univ. N. Dak., Grand Forks.]

Strautman, E. I. [THE MUSKRAT IN KAZAKHSTAN.] Akad. Nauk Kazakhsk. SSR (Alma-Ata). 231 p., illus. 1963. Price 1 rouble, 8 kopecks. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 22I193K. Transl. of Russian abstr.] WR 119: 29
The introduction of the muskrat into Kazakhstan, present habitats, distribution, taxonomy, morphology, population size, economic value, breeding, and the theoretical basis for acclimatization are presented.

Zamakhaev, V. A. [ACCLIMATIZATION OF THE MUSKRAT IN THE VOLGA DELTA.] Sbornik Nauchn.-Tekhnol. Inform. Vses.-Nauchn.-Issled. Inst. Zhivotnogo Syr'ya Pushniny 6(9): 49-59. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1963, no. 23I241. Transl. of Russian abstr.] WR 119: 29

BEARS

Erickson, Albert Wendell. BREEDING BIOLOGY AND ECOLOGY OF THE BLACK BEAR IN MICHIGAN. Ph.D. thesis, Mich. State Univ. 352 p. 1964. [From long abstr. in Dissertation Abstr. 26(2), 1965.] WR 119: 29
Deals with the breeding biology: seasonal variations in hematology and physiology; live-trapping and handling techniques; population structure, movements and mortality; age of self-sufficiency, and kill statistics of Ursus americanus.

Gudritis, V. [BEARS (URSUS SP.) IN EAST SIBERIA.] Sel'skokhoz. Proizvodstvo Sibiri Dal'nego Vost. 1: 86-87. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 3I287. Transl. of Russian abstr.] WR 119: 29
In the summers of 1960 and 1961, when there were crop failures in pine nuts and berries in some regions of eastern Siberia, bears did not hibernate until Jan. or wakened early (their tracks were found as early as the middle of March).

Kurtén, Björn. THE EVOLUTION OF THE POLAR BEAR, URSUS MARITIMUS PHIPPS. Acta Zool. Fennica 108: 3-30, illus. Dec. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 29

Parovshchikov, V. Ya. [THE POLAR BEAR (URSUS MARITIMUS) ON FRANZ JOSEF LAND.] In: (Second All-Union meeting on the study of marine mammals, 1963.) Akad. Nauk SSSR (Moscow-Leningrad). p. 34-35. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 31290. Transl. of Russian abstr.] WR 119: 29
In spring the population of polar bears (Ursus maritimus) consisted of 100 breeding females (18-19%), 170-200 cubs born during that year (33-36%), and other individuals (46%) -- a total of 520-550.

RACCOON, RINGTAIL, COATI

Caldwell, Joseph Arthur. AN INVESTIGATION OF RACCOONS IN NORTH-CENTRAL FLORIDA. M.S. thesis, Univ. Fla. 1963. [Osborn and others, Forest Sci. 11 (2), 1965.] WR 119: 30

Kinard, Frederick W., Jr. FOOD HABITS OF THE EASTERN RACCOON, PROCYON LOTOR (L.), IN WEST-CENTRAL SOUTH CAROLINA. M.S. thesis, Univ. Ga. 1964. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 30

Mukhtarov, R. D. [THE ECOLOGY AND SPREAD OF THE RACCOON IN THE BOSTANDYK MOUNTAINS.] In: (Commercial game animals of Uzbekistan.) Akad. Nauk Uzbeksk. SSR (Tashkent). p. 25-35. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I236. Transl. of Russian abstr.] WR 119: 30

Schultz, Allen Lee. A SURVEY OF PARASITES OF THE RACCOON, PROCYON LOTOR, IN SOUTHEASTERN MICHIGAN. M.S. thesis, Univ. Mich. 1962. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 30

MUSTELIDS

Afanas'ev, Yu. G. [NOTES ON SABLE (MARTES ZIBELLINA AVERINI BASHANOV, 1943) IN KAZAKHSTAN.] Trudy Inst. Zool. Akad. Nauk Kazakhsk. SSR 17: 144-146. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 19I177. Transl. of Russian abstr.] WR 119: 30

Burns, John J. COMPARISON OF TWO POPULATIONS OF MINK FROM ALASKA. Canadian J. Zool. 42(6): 1071-1079. Nov. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 30

Burns, John James. THE ECOLOGY, ECONOMICS, AND MANAGEMENT OF MINK IN THE YUKON-KUSKOKWIM DELTA, ALASKA. M.S. thesis, Univ. Alaska. 114 p. May 1964. WR 119: 30
Courtesy/ Frederick C. Dean.

Grakov, N. N. [EFFICIENT USE OF THE STOCKS OF PINE MARTEN IN ARKHANGEL OBLAST.] Sb. Nauchn. Tekh. Inform. Vses. Nauchn.-Issled. Inst. Zhivotnogo Syr'ya & Pushniny 4(7): 20-24. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 10I259. Transl. of Russian abstr.] WR 119: 30

Korchmar', N. D. [THE STONE MARTEN IN MOLDAVIA.] In: (Problems of ecology and practical significance of birds and mammals in Moldavia.) Shtiintsa (Kishinev). p. 64-69. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 15I286. Transl. of Russian abstr.] WR 119: 30
"Mustela foina".

Long, Charles A. COMPARISON OF JUVENILE SKULLS OF THE MUSTELID GENERA TAXIDEA AND MELES, WITH COMMENTS ON THE SUBFAMILY TAXIDIINAE POCOCK. Am. Midland Nat. 74(1): 225-232, 2 figs. July 1965. WR 119: 30
[Univ. Ill., Urbana.]

Marakov, S. V. [A RELIC OF NATURE OR A COMMERCIALLY VALUABLE SPECIES? THE DESTINY OF SEA OTTERS FROM COMMANDER ISLANDS.] Priroda 52(11): 79-83. 1963. [From Biol. Abstr. 45(24), 1964. In Russian.] WR 119: 30

Numerov, K. D., and P. N. Pavlov. [THE PAST AND PRESENT SABLE OF THE YENISEI AREA OF SIBERIA.] Uch. Zap. Krasnodarsk. Gos. Pedagog. Inst. 24(5): 85-105. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1963, no. 23I207. In Russian.] WR 119: 30

DOGS, WOLVES, FOXES

Balser, Donald S. TRANQUILIZER TABS FOR CAPTURING WILD CARNIVORES. J. Wildl. Mgmt. 29(3): 438-442, 1 fig. July 1965. WR 119: 31
[Bur. Sport Fisheries & Wildl., Denver, Colo.] Abstract: A tranquilizer trap-tab using the drug "diazepam" has shown utility in reducing injuries to carnivores caught in steel traps and in preventing their escape. The tab consists of a cloth tablet wired to the trap jaw and containing 1 g of diazepam for coyotes (Canis latrans) and 500 mg for foxes (Vulpes sp.). Upon capture the animals usually chew the tab and ingest the drug. Ataxia follows in approximately 10-30 minutes, and struggling by the trapped animals is reduced. The effects usually last 24-48 hours, depending on the amount of diazepam consumed. This device was developed primarily for capturing animals unharmed for laboratory experiments, but it has additional applications in capturing animals for marking, in providing easy release of dogs or other pets, and in making steel trapping more humane.

Fredrickson, Luther E., and Luttrell Thomas. RELATIONSHIP OF FOX RABIES TO CAVES. Public Health Repts. 80(6): 495-500, 5 figs. June 1965. WR 119: 31
[Tenn. Dept. Public Health, Nashville.] Although the data presented do not prove that caves permit rabid bats to infect the local fox population, they do suggest a positive relationship between the number of caves and the number of rabid foxes.--From summ.

Holcomb, Larry C. LARGE LITTER SIZE OF RED FOX. J. Mammal. 46(3): 530. Aug. 1965. WR 119: 31
[Midland Lutheran Coll., Fremont, Nebr.] A litter of 17 Vulpes vulpes found in Calhoun County, Mich., in 1956.

Pedersen, Alwin. POLARALVEN I GRØNLAND. [ARCTIC WOLF IN GREENLAND.] Grønland 5: 195-200, illus. 1963. [From Biol. Abstr. 45(22), 1964. In Norwegian.] WR 119: 31

Pournelle, George H. OBSERVATIONS ON BIRTH AND EARLY DEVELOPMENT OF THE SPOTTED HYENA. J. Mammal. 46(3): 503. Aug. 1965. WR 119: 31
[San Diego Zoo, San Diego, Calif.]

Skrobov, V. D. [A STUDY OF THE ECOLOGY OF THE ARCTIC FOX AS A BASIS FOR THE EVALUATION AND CLASSIFICATION OF THE USEFUL HUNTING AREAS OF THE WESTERN SIBERIAN TUNDRAS.] In: (Problems of zoological research in Siberia.) Knigoizdat (Gorno-Altaisk). p. 213-215. 1962. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I288. Transl. of Russian abstr.] WR 119: 31

CATS

Abramov, V. K. [BIOLOGY OF THE AMUR TIGER PANTHERA TIGRIS LONGIPILIS FITZINGER, 1868.] Vest. Ceskoslov. Spolecnosti Zool. 26(2): 189-202, illus. 1962. [Long abstr. in Biol. Abstr. 45(23), 1964. Original in Russian with English summ.] WR 119: 31

Golley, Frank B., George A. Petrides, Ernest L. Rauber, and James H. Jenkins. FOOD INTAKE AND ASSIMILATION BY BOBCATS UNDER LABORATORY CONDITIONS. J. Wildl. Mgmt. 29(3): 442-447, 1 fig. July 1965. WR 119: 31
[Univ. Ga., Athens.] Abstract: Energy balance in the wild bobcat (Lynx rufus) was measured on eight animals trapped in the field and maintained on chicken, rabbit (Sylvilagus floridanus), or deer (Odocoileus virginianus) meat diets for up to 100 days. Food intake was found to be subject to much variation, with physical condition (as indicated by behavior, coat condition, and body weight) being maintained on an intake level of one-half the average intake. Energy consumption averaged 138 kcal/kg/day. Percentages of intake energy were as follows: feces, 9 percent; urine, 8 percent; weight gain, 6 percent; and metabolism, 77 percent. There are implications in these observations to understanding the life history of a carnivore.

Jullien, A., J. Cardot, and M. Joly. LE CHAT SAUVAGE (FELIS SILVESTRIS BRISSON) DANS LA RÉGION DE BESANCON. [THE WILD CAT (FELIS SILVESTRIS BRISSON) IN THE BESANCON REGION.] Bull. Soc. Hist. Nat. Doubs 62(4): 95-98, illus. 1960. [From Biol. Abstr. 45(19), 1964. In French.] WR 119: 32
[Univ. Besancon, Besancon, France.]

Vasiliu, George D., and Paul Decei. ÜBER DEN LUCHS (LYNX LYNX) DER RUMÄNISCHEN KARPATEN. [ON THE LYNX (LYNX LYNX) OF THE RUMANIAN CARPATHIANS.] Säugetierk. Mitteil. 12(4): 155-183, illus. 1 Nov. 1964. [From J. Mammal. 46(3), 1965. In German.] WR 119: 32

BIG GAME, GENERAL

Ahlén, Ingemar. STUDIES ON THE RED DEER, CERVUS ELAPHUS L., IN SCANDINAVIA. I. HISTORY OF DISTRIBUTION. Viltrevy 3(1): 1-88, 13 figs. 1965. In English with long Swedish abstr. WR 119: 32
[Zool. Inst., Lund Univ., Lund, Sweden.]

Ahlén, Ingemar. STUDIES ON THE RED DEER, CERVUS ELAPHUS L., IN SCANDINAVIA. II. TAXONOMY AND OSTEOLOGY OF PREHISTORIC AND RECENT POPULATIONS. Viltrevy 3 (2): 89-176, 80 figs. 1965. In English with long Swedish abstr. WR 119: 32
[Zool. Inst., Lund Univ., Lund, Sweden.]

Aleksandrova, I. V., and L. I. Krasovskii. [DATA ON THE SUMMER DIET OF THE MOOSE IN THE SOUTHERN PART OF MOSCOW OBLAST.] Trudy Vses. Nauchn.-Issled. Inst. Zhivotnogo Syr'ya & Pushniny 19: 230-246. 1962. [From Biol. Abstr. 45 (20), 1964, from Referat. Zhur., Biol., 1963, no. 10I246. Transl. of Russian abstr.] WR 119: 32

Anderson, Roy C. CEREBROSPINAL NEMATODIASIS (PNEUMOSTRONGYLUS TENUIS) IN NORTH AMERICAN CERVIDS. Trans. 30th N. Am. Wildl. Conf. p. 156-167. 1965. WR 119: 32
[Ontario Res. Foundation, Toronto, Canada.] Summary: A review is given, with special reference to work done in Ontario, of knowledge concerning the distribution, development, transmission, and pathogenesis of Pneumostrongylus tenuis, the meningeal nematode of white-tailed deer. The evidence in favour of the hypothesis, first put forward in 1963, that P. tenuis is the causal agent of neurologic disease in wild moose is presented. It is suggested that P. tenuis and the related species Parelaphostrongylus odocoilei in deer of the west coast are unique to the genus Odocoileus and have had a long association with these typically North American cervids. The moose on the other hand, may be a relatively new and poorly adapted host for P. tenuis having recently come in contact with this parasite as a result of the well-known northward extension of the range of white-tailed deer. The relationship of P. tenuis to neurologic disease in sheep is discussed briefly.

Anderson, Roy C. AN EXAMINATION OF WILD MOOSE EXHIBITING NEUROLOGIC SIGNS, IN ONTARIO. Canadian J. Zool. 43(4): 635-639 + 6 figs. on 3 pls. July 1965. WR 119: 32
[Ontario Res. Foundation, Toronto, Canada.] Abstract: The central nervous systems of three wild moose (Alces a. americana) exhibiting neurologic signs, in the Kenora district of Ontario, Canada, were studied histologically. A diagnosis of cerebrospinal nematodiasis (Pneumostrongylus tenuis) was made in all three animals.

Arabuli, A. B. [NATURAL ENEMIES AND DISEASES OF THE ROE DEER (CAPREOLUS CAPREOLUS CAPREOLUS L.) WHICH OCCUR IN KAKHETIA.] Soobshch. Akad. Nauk Gruzinsk. SSR 32(1): 171-174. 1963. [From Biol. Abstr. 45(19), 1964. In Russian.] WR 119: 32
[Inst. Zool. Akad. Sci. Georgian SSR, Tbilisi, Georgian SSR.]

Bannikov, A. [WILD UNGULATES. THE PROSPECTS FOR THEIR ECONOMIC USE.] Okhota & Okhotnich'e Khoz. 9: 26-28. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I243. Transl. of Russian abstr.] WR 119: 33

Bannikov, A. [WILD UNGULATES IN THE BARSA-KEL'MES PRESERVE.] Okhota & Okhotnich'e Khoz. 3: 22-23. 1963. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 22I241. Transl. of Russian abstr.] WR 119: 33

Bannikov, A. G. [THE PRESENT AND THE FUTURE OF WILD UNGULATES.] Priroda 52 (8): 67-72, illus. 1963. [From Biol. Abstr. 45(19), 1964. In Russian.] WR 119: 33

Wild ungulates are being reestablished in the USSR. The total now numbers between 6 and 7 million and represents 22 species. S. tatarica, A. alces, Moschus moschiferus, Sus scrofa, Capreolus capreolus, Rangifer tarandus and Capra sibirica number over 500,000 each.

Barancheev, L. M. [MASS NONPERIODIC MIGRATIONS OF THE ROE DEER (CAPREOLUS CAPREOLUS) IN AMUR OBLAST.] Migratsiya Zhivotnykh. Akad. Nauk SSSR (Moscow) 3: 26-36, map. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I212. Transl. of Russian abstr.] WR 119: 33

Box, Thadis W., and Jeff Powell. BRUSH MANAGEMENT TECHNIQUES FOR IMPROVED FORAGE VALUES IN SOUTH TEXAS. Trans. 30th N. Am. Wildl. Conf. p. 285-296. 1965. WR 119: 33

[Welder Wildl. Foundation, Sinton, Texas.] During the summer of 1963 a study of the relative merits of 5 brush management techniques was initiated on the Rob and Bessie Welder Wildlife Refuge. Methods used were mowing, roller chopping, clearing with a bulldozer and KG blade, root-plowing, and root-plowing and raking. All methods reduced cover significantly. The root-plowed areas and the root-plowed and raked plots reduced the brush population to the point where it had no significant value for forage. Mowing of brush increased forage values 8 fold over the check, roller chopping increased brush forage values 6 fold, and removing with a K-G blade increased forage values 4 fold on clay soils. On sandy loam soils, roller chopping and K-G blade removal of brush increased its value almost 2 fold, root-plowing and root-plowing and raking reduced forage values almost to zero, and mowing was not tested. Browse preference values were increased on all species of woody plants by treatments used. Highest preference values were for plants that resprouted vigorously after their tops had been removed. Brush management, or control of woody plants, appears to be more desirable from a livestock-game standpoint than attempted eradication of brush on South Texas ranges. Removal of brush tops by relatively inexpensive methods increased forage values and preference ratings of brush plants and did not permanently destroy wildlife cover.--From summ.

Brunetti, Oscar A. TICK PARALYSIS IN CALIFORNIA DEER. Calif. Fish & Game 51(3): 208-210. July 1965. WR 119: 33

[Calif. Dept. Fish & Game, Sacramento.]

Day, Gerald I., Richard F. Dyson, and Fred H. Landeen. A PORTABLE RESUSCITATOR FOR USE ON LARGE GAME ANIMALS. J. Wildl. Mgmt. 29(3): 511-515, 3 figs. July 1965. WR 119: 33

[Ariz. Game & Fish Dept., Tucson.] Abstract: An overdose of muscle relaxant drug can cause paralysis of the diaphragm and the animal will die of anoxia. Artificial respiration by manual depression of the chest proved ineffective in reviving overdosed animals. Penned mule deer (Odocoileus hemionus), antelopes (Antilocapra americana), and black bears (Euarctos americana) which had been overdosed with succinylcholine chloride were successfully resuscitated with an Ambu resuscitator and endotracheal tube. This equipment was only partly successful on collared peccaries (Pecari tajacu) owing to the difficulty of inserting the endotracheal tube. When using the Ambu, dosages can be safely increased to the point where immobilization is assured without additional risk of death.

Dietz, Donald R. DEER NUTRITION RESEARCH IN RANGE MANAGEMENT. Trans. 30th N. Am. Wildl. Conf. p. 274-285. 1965. WR 119: 34
[Rocky Mountain Forest & Range Expt. Sta., Rapid City, S. Dak.] The advantages and disadvantages of various nutritional measurement techniques are discussed as they relate to game-range management. Highlights of some deer nutritional studies in Colorado are presented. Significant findings were: (1) Intensity of clipping did not alter nutritional value of browse; (2) browse plant leaves contained their highest levels of protein, phosphorus and carotene in early summer and highest levels of crude fat, nitrogen-free extract, and crude fiber in early fall; (3) stems contained their highest levels of protein, crude fat, and carotene during the fall and winter; (4) evergreen browse species maintained their nutritive content better than deciduous shrubs during the winter season; (5) deer were able to digest the nutrients in sagebrush to a greater extent than in bitterbrush and mountainmahogany; and (6) plant species were less digestible in mixtures than when fed alone. The game-range manager can use nutritional information to: (1) Determine the nutritional quality of game ranges; (2) favor plants of high nutritional value in the management of game habitats; and (3) select range improvement practices which will round out nutritional requirements on different ranges.--Auth. abstr.

Gudritis, V. [CAPTURING WILD UNGULATES.] Sel'skoe Khoz. Sibiri 12: 70-71. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I245. Transl. of Russian abstr.] WR 119: 34

Gulyaeva, M. A. [EXPERIMENTS ON TAME AND SEMI-WILD MAINTENANCE OF TUGAI DEER AT THE FOREST PRESERVE "TIGROVAYA BALKA".] Trudy Inst. Zool. & Parazitol. Akad. Nauk Tadzhiksk SSR 22: 96-102. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 8I225. Transl. of Russian abstr. Original with Tadzhik summ.] WR 119: 34
Fawns of Tugai deer captured at ages from 1-2 to 12 days were maintained on a ration of cow's milk, beets, green and concentrated feeds, and cooking salt. Information is given on the amount of food eaten at different times of the year, body measurements and weights. The average daily gain in weight varied from 200 to 500 g. On transfer to maintenance in free pasture, the deer arrived daily at a cordon where they obtained food; they did not mingle with wild deer and differed from them in their daily periodic activity.

Halladay, Orlynn Joseph. AN ECOLOGICAL STUDY OF THE ELK IN BEDFORD AND BOTETOURT COUNTIES, VIRGINIA. M.S. thesis, Univ. Mich. 1964. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 34

Harris, John Tom. POPULATION DYNAMICS OF THE WHITE RIVER ELK HERD, COLORADO. Ph.D. thesis, Univ. Mich. 1964. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 34

Johnson, Oscar W., and Irven O. Buss. MOLARIFORM TEETH OF MALE AFRICAN ELEPHANTS IN RELATION TO AGE, BODY DIMENSIONS, AND GROWTH. J. Mammal. 46(3): 373-384, 3 figs. Aug. 1965. WR 119: 34
[Moorhead State Coll., Moorhead, Minn.]

Jones, Webster B. RESPONSE OF MAJOR PLANT SPECIES TO ELK AND CATTLE GRAZING IN NORTHWESTERN WYOMING. J. Range Mgmt. 18(4): 218-220, 3 figs. July 1965. WR 119: 34
[Univ. Wyo., Laramie.] Highlight: Grazed elk ranges differ from grazed cattle ranges. Composition changes were detected for 18 plant species occurring on both types of range.

Kaznevskii, P. F. [RED DEER IN THE VORONEZH GAME PRESERVE FOR 40 YEARS. (POPULATION DYNAMICS AND PERMISSIBLE DENSITY).] Zool. Zhur. 42(6): 926-931, illus. 1963. [From Biol. Abstr. 45(19), 1964. In Russian with English summ.] WR 119: 34

Kim, T. A., and G. A. Sokolov. [SOME NEW DATA ON THE DISTRIBUTION AND ECOLOGY OF THE REINDEER IN THE WESTERN AND EASTERN SAYAN MOUNTAINS.] Uch. Zap. Krasnodarsk. Gos. Pedagog. Inst. 24(5): 33-43. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 1I248. Transl. of Russian abstr.] WR 119: 35

Lent, Peter C. RUTTING BEHAVIOUR IN A BARREN-GROUND CARIBOU POPULATION. Animal Behaviour 13(2&3): 259-264. Apr.-July 1965. WR 119: 35
[Univ. Basutoland, Roma, Basutoland.]

Likhachev, A. I. [THE DOMESTIC USE OF THE MOOSE (ALCES ALCES) AND THE DIRECTION OF THE WORK DONE TO DOMESTICATE IT.] Voprosy Okhrany Prirody Zapadnoi Sibiri (Novosibirsk) 3: 91-98. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I244. Transl. of Russian abstr.] WR 119: 35

Michurin, L. [RETURN THE REINDEER TO OUR FORESTS.] Okhota & Okhotnich'e Khoz. 2: 27-28. 1963. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 22I247. Transl. of Russian abstr.] WR 119: 35

Moran, Richard J., and John J. Ozoga. ELK CALF PURSUED BY COYOTES IN MICHIGAN. J. Mammal. 46(3): 498. Aug. 1965. WR 119: 35
[Houghton Lake Wildl. Expt. Sta., Houghton Lake Heights, Mich.]

Naniev, V. I. [THE DEATH OF EASTERN CAUCASIAN WILD GOATS FROM SNOW AVALANCHES DURING MIGRATION.] Migratsiya Zhivotnykh. Akad. Nauk SSSR (Moscow) 3: 37-39. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I217. Transl. of Russian abstr.] WR 119: 35

Richards, Stephen H. DEER AND ANTELOPE EPIZOOTIC IN THE NORTH DAKOTA BADLANDS. Proc. N. Dak. Acad. Sci. 17: 70-71. 1963. [From Biol. Abstr. 45 (24), 1964.] WR 119: 35
[N. Dak. Game & Fish Dept., Jamestown.] Epidemic hemorrhagic virus was isolated from more than 200 deer and antelope. All were negative for nitrate poisoning, pesticides, metals and poisonous plants.

Rusanov, Ya. S. [A METHOD FOR EVALUATING LAND USABLE FOR RED DEER BY THEIR FREQUENCY OF OCCURRENCE.] Sbornik Nauchn.-Tekhn. Inform. Vses. Nauchn.-Issled. Inst. Zhivotnogo Syr'ya Pushniny 5(8): 41-46. 1963. [From Biol. Abstr. 45 (24), 1964, from Referat. Zhur., Biol., 1964, no. 5I227. Transl. of Russian abstr.] WR 119: 35

Samoilov, E. B. [ECOLOGY AND ECONOMIC EXPLOITATION OF CERVUS CANADENSIS LUGDORFI IN CHITINSKAYA OBLAST'.] Zap. Zabaikal'sk Otd. Vses. Geog. Obshch. 18: 19-32. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 19I188. Transl. of Russian abstr.] WR 119: 35

Smith, Arthur D., Donald M. Beale, and Dean D. Doell. BROWSE PREFERENCES OF PRONGHORN ANTELOPE IN SOUTHWESTERN UTAH. Trans. 30th N. Am. Wildl. Conf. p. 136-141. 1965. WR 119: 35
[Utah State Univ., Logan.] Six captive antelope were offered 16 browse species common to the desert valleys of southwestern Utah for a period of six days. The forage was arranged in a "cafeteria" providing free choice of species. All material was weighed before and after being made available. More than half the total consumption was provided by big sagebrush (Artemisia tridentata) with black sagebrush (A. nova) and juniper (Juniperus osteosperma) combining to form 95% of the forage consumed. The nutrient values of the diet were computed and the values obtained were well in excess of recommended nutrient allowances for sheep.--A. D. Smith.

Sokolov, G. A. [THE DISTRIBUTION OF THE WILD BOAR AND THE SIBERIAN WILD GOAT IN THE CENTRAL PART OF THE WESTERN SAYAN AND SOME QUESTIONS OF THEIR ECOLOGY.] In: (Problems of zoological research in Siberia.) Knigoizdat (Gorno-Altaisk). p. 218-219. 1962. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1964, no. 11236. Transl. of Russian abstr.] WR 119: 36

Solomatin, A. O. [THE DIET AND WATER INTAKE OF THE KULAN (EQUUS HEMIONUS) IN SOUTHEASTERN TURKMENIA (BADKHYZ).] Trudy Inst. Zool. Akad. Nauk Kazakhsk SSR 20: 89-130. 1963. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1964, no. 51249. Transl. of Russian abstr.] WR 119: 36

Taylor, R. H., and W. B. Magnussen. PRELIMINARY NOTE ON CAPTURE AND MARKING OF WILD UNGULATES IN NEW ZEALAND. New Zealand J. Sci. 8(2): 205-213, 2 figs. June 1965. WR 119: 36

[Animal Ecol. Div., DSIR, Wellington, New Zealand.] Summary: Progress is reported in the development of techniques for capturing and marking red deer (Cervus elaphus) and other wild ungulates in New Zealand. Both "Cap-Chur" and "Paxarms" remote injection equipment are being used. Several immobilising drugs have been tested and succinylcholine chloride found the most efficient (effective dose 0.20 mg/kg, 0.09 mg/lb) for red deer. Methods for hunting and handling animals are outlined; overdrugged animals and those recovering in mountainous terrain present special problems. Self-attaching collars have also been tested and proved effective for marking wild deer under New Zealand field conditions.

Ustinov, S. K. [A STUDY OF ELK MIGRATIONS IN THE BARGUZINSK RANGE.] Izvest. Vostochnosibirsk Otd. Geog. Obshch. SSSR 60: 125-130. 1962. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 5I251. Transl. of Russian abstr.] WR 119: 36

Zakhlebnyi, A., and B. Fil'. [THE WILD UNGULATES OF TOFALARIYA.] Sel'skokhoz Proizvodstvo Sibiri Dal'nego Vost. 3: 87. 1963. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I246. Transl. of Russian abstr.] WR 119: 36

Zurowski, W., and M. Sakowicz. EFFECTS OF SUCCINYLCHOLINE CHLORIDE ON WILD BOARS. J. Wildl. Mgmt. 29(3): 626-629, 1 fig. July 1965. WR 119: 36

[Lab. Game Animals Physiol. & Breeding, Popielno, District Pisz, Poland.] Abstract: On the basis of 27 experiments with intramuscular injections of succinylcholine chloride to wild boars (Sus scrofa), captured in a special trap, the immobilizing doses of this drug were established. The doses depend on the body weight of animals and are within the range of 0.27-1.34 mg/kg liveweight of animal. The boars show a very high tolerance in susceptibility to succinylcholine chloride and, therefore, the dose of 0.6 mg/kg liveweight can be considered a universal one. Experiments with intramuscular injections of tranquiline to wild boars have shown that the desired effect can be obtained with a dose of about 0.35 ml/kg liveweight of animal.

DEER (Odocoileus)

Blouch, Ralph Irving. THE RESPONSE OF DEER TO A FOREST-WILDLIFE MANAGEMENT PROGRAM ON THE MID FOREST LODGE. Ph.D. thesis, Univ. Mich. 1963. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 36

Debbie, J. G., H. C. Rowsell, L. H. Karstad, and J. Ditchfield. AN APPROACH TO THE PATHOGENESIS OF VIRAL HEMORRHAGIC DISEASE OF DEER. Trans. 30th N. Am. Wildl. Conf. p. 196-205, [2 figs.]. 1965. WR 119: 36

[Ontario Vet. Coll., Guelph, Canada.] Thirteen white-tailed deer (Odocoileus virginianus) were exposed by various routes to the Alberta strain of the virus of epizootic hemorrhagic disease of deer. Clinical signs of illness were recorded and pathologic studies were made on the tissues of animals which

succumbed or were killed for necropsy. Special attention was given to measurements of blood platelets, clotting times, prothrombin times and the Russells' viper venom test for indications of derangements in hemostasis. The complement fixation test was used but was found to be undependable as a tool to determine the immunologic responses of the experimental deer. Thrombocytopenia developed in infected animals. This was positively correlated with severity of clinical illness. Blood coagulation times were prolonged, both on siliconized glass and as determined by the Russells' viper venom test. Some of the infected deer died with extensive hemorrhages, while others appeared grossly relatively normal. In several of these cases death was caused by myocardial infarction, in the absence of marked hemorrhages in other tissues. This disease of deer is regarded as a useful model for studies of pathogenetic mechanisms in the so-called viral "hemorrhagic fevers".--L. H. Karstad.

Gill, John D., and David C. O'Meara. ESTIMATING TIME OF DEATH IN WHITE-TAILED DEER. J. Wildl. Mgmt. 29(3): 471-486, 3 figs. July 1965. WR 119: 37
[Maine Dept. Inland Fisheries & Game, Orono.] Abstract: Methods have been devised for use in law-enforcement investigations which require estimating the length of time a deer (Odocoileus virginianus) has been dead. The study area was near Bar Harbor, Maine, and the season was mostly November-December. Eighty-five deer were shot and handled under either legal hunting or poaching conditions, and the carcasses were observed during periods of 2-13 days. Four easily measured postmortem characteristics indicated time since death more consistently than others requiring use of specialized instruments or laboratory procedures. Reference data on carcass temperatures, eye appearances, pupil diameter, and rigor-mortis patterns are presented. Maine game wardens made a preliminary test of the methods and found them useful.

Hesselton, William T., C. W. Severinghaus, and John E. Tanck. POPULATION DYNAMICS OF DEER AT THE SENECA ARMY DEPOT. N.Y. Fish & Game J. 12(1): 17-30. Jan. 1965. WR 119: 37
[N.Y. State Conserv. Dept., Albany.] Abstract: By 1957 deer had become so numerous on the Seneca Army Depot that they constituted a serious nuisance and had badly depleted the available forage. Hunting was undertaken as a management measure and proved successful in reducing the population to a level where it was compatible with the activities at the Depot and within the carrying capacity of the range. Insofar as possible, all deer removed were examined, and data on sex, age and reproductive condition were recorded. From these, estimates were made of the population trend and composition from year to year. By 1961 the reproductive rate, which was low in 1957, had risen substantially. Average weights and antler size had also increased.

Hungerford, Charles R. RESPONSE OF KAIBAB MULE DEER TO RESEEDED FOREST AND MEADOW. Trans. 30th N. Am. Wildl. Conf. p. 310-321. 1965. WR 119: 37
[Ariz. Coop. Wildl. Res. Unit, Tucson.] The benefits to Kaibab mule deer of of reseeding on summer ranges was studied in the summers of 1962 through 1964. Plantings were found to be most heavily used in early summer before the fawning period and the deer were found to make considerable use of planted grasses. Funds for this habitat improvement are paid by the hunter and the Kaibab serves as an example of the benefits to game of a fee collected for a recreational use of National Forest land.--Auth. abstr.

Jenkins, David Hall. THE PRODUCTIVITY AND MANAGEMENT OF DEER ON THE EDWIN S. GEORGE RESERVE, MICHIGAN. Ph.D. thesis, Univ. Mich. 203 p. 1964. [From Dissertation Abstr. 25(12, part 1), 1965.] WR 119: 37

Jordan, James S., Donald Hagar, and William M. Stiteler, Jr. DEER-BROWSE PRODUCTION AND TIMBER-STAND IMPROVEMENT IN NORTHERN HARDWOODS. Trans. 30th N. Am. Wildl. Conf. p. 296-305, 1 fig. 1965. WR 119: 37
[NE Forest Expt. Sta., Warren, Pa.] A report of first-year results with a new method of thinning to improve wildlife habitat in northern hardwood poletimber stands. The non-commercial method is currently being tested on the

Allegheny National Forest in northern Pa. Felling in winter of all stems except the future crop trees on 10-acre blocks in 40-60-year-old stands resulted in a yield of 140,000 twigs of deer browse per acre--a more than tenfold increase over that in uncut stands. Residual basal area in crop trees is the same as that specified for standard thinning methods. The error of the estimate was ± 15% at the 95% confidence interval. Nearly 70% of the yield of twigs in the first year was in the tops of felled trees. The study will continue through the useful life of the cutting, or about 5 years.--J. S. Jordan.

Klein, David R. ECOLOGY OF DEER RANGE IN ALASKA. Ecol. Monographs 35 (3): 259-284, 14 figs. Summer 1965. WR 119: 38

[Alaska Dept. Fish & Game, Juneau.] The sex and age composition of the deer (Odocoileus hemionus sitkensis) populations on Woronkofski and Coronation Islands reflect the quality and quantity of the forage. On Woronkofski Island, as compared with Coronation Island, there is a higher ratio of fawns to adult females, a more even sex ratio, and lower natural mortality. The differences in forage are chiefly quantitative rather than qualitative. Woronkofski Island is superior to Coronation Island in plant density and species abundance on forest and muskeg areas, total area of alpine and subalpine habitat, and in total vegetated area. Chemical analyses did not show significant qualitative difference in the plant growth on the two islands.

Knowlton, Frederick Frank. ASPECTS OF COYOTE PREDATION IN SOUTH TEXAS WITH SPECIAL REFERENCE TO WHITE-TAILED DEER. Ph.D. thesis, Purdue Univ. 1964. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 38

Marchinton, Robert Larry. ACTIVITY CYCLES AND MOBILITY OF CENTRAL FLORIDA DEER BASED ON TELEMETRIC AND OBSERVATIONAL DATA. M.S. thesis, Univ. Fla. 1964. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 38

Mattfeld, George Francis. KINDS OF LAND USED BY DEER HUNTERS IN MICHIGAN WITH METHODOLOGY AND ANALYSIS OF DATA COLLECTION. M.S. thesis, Univ. Mich. 1964. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 38

Miller, Frank L. BEHAVIOR ASSOCIATED WITH PARTURITION IN BLACK-TAILED DEER. J. Wildl. Mgmt. 29(3): 629-631. July 1965. WR 119: 38

[Oreg. State Univ., Corvallis.] Abstract: A black-tailed deer (Odocoileus hemionus) was observed giving birth to a fawn from 1 hour before the birth to the capture of the fawn 2 hours after it was born. The birth process was without observable difficulty and took about 7 minutes. The fawn stood up within half an hour after its birth and started to suck within an hour.

Nellis, Carl. THE MULE DEER OF THE NATIONAL BISON RANGE: POPULATION DYNAMICS, FOOD HABITS, AND PHYSICAL CONDITION. M.S. thesis, Mont. State Univ. 1964. WR 119: 38

Ozoga, John J., and Leslie W. Gysel. A MECHANICAL RECORDER FOR MEASURING DEER ACTIVITY. J. Wildl. Mgmt. 29(3): 632-634, 2 figs. July 1965. WR 119: 38

[Mich. State Univ., East Lansing.] Abstract: An inexpensive device for recording the number of white-tailed deer (Odocoileus virginianus) moving in runways and the time of movement was developed for use in northern Michigan. The record is made by the movement of a trip line attached to a lever which marks a tape attached to a clock; the lever also turns a countershaft. Results of extensive field tests indicate that these recorders have functioned satisfactorily, and observations from blinds have revealed that they provide a reliable index to the intensity and time of deer activity.

Pearson, Henry A. RUMEN ORGANISMS IN WHITE-TAILED DEER FROM SOUTH TEXAS. J. Wildl. Mgmt. 29(3): 493-496, 3 figs. July 1965. WR 119: 39
[Rocky Mountain Forest & Range Expt. Sta., Flagstaff, Ariz.] Abstract: Rumen microbial populations were examined from white-tailed deer (Odocoileus virginianus) in south Texas. The microorganisms were identified on the basis of their morphology and staining characteristics. Only one genus of ciliate protozoa (Entodinium) was observed in the rumen of the deer, while many genera or morphological types of bacteria were observed. The types of bacteria consisted of various cocci, rod-shaped, and spiral organisms similar to those described in domestic ruminants. The number of rumen ciliate protozoa from deer varied with the stage of plant maturity, declining as the plants matured. Plant maturity was induced by low winter temperatures or by late spring drought. The protozoa numbers increased during rapid vegetation growth in the spring. The numbers of rumen ciliate protozoa in white-tailed deer apparently reflect the nutritive value and availability of the range forage. The numbers of rumen bacteria showed no seasonal pattern. An inverse relationship between rumen bacteria and ciliate protozoa was indicated.

Shafer, Elwood L., Jr. DEER BROWSING OF HARDWOODS IN THE NORTHEAST: A REVIEW AND ANALYSIS OF THE SITUATION AND THE RESEARCH NEEDED. U. S. Forest Serv. Res. Paper NE-33. 37 p., illus. 1964. WR 119: 39
[NE Forest Expt. Sta., Upper Darby, Pa.] Abstract: Reviews and analyzes the situation, describes multiple-use management procedures, and suggests research studies needed in the production, utilization, and measurement of hardwood deer browse in the Northeast.

Silver, Helenette. AN INSTANCE OF FERTILITY IN A WHITE-TAILED BUCK FAWN. J. Wildl. Mgmt. 29(3): 634-636. July 1965. WR 119: 39
[N. H. Fish & Game Dept., Boscawen.] Abstract: White-tailed deer (Odocoileus virginianus) fawns of both sexes have been reared by the New Hampshire Fish and Game Department since 1953. Does frequently mature their first season but until 1963 did not reproduce because they were not penned with mature bucks. Sexual maturity in a buck fawn was recorded in 1963 when Doe 41 was bred on December 29, at the age of 214 days, by Buck 48. On the two hundred fifth day after mating she gave birth to a male fawn which was born dead. Buck 48 had bare, polished antler buttons by the first week in November; he displayed adult breeding behavior, reached maximum fall weight of 94 pounds on December 7 at the age of 180 days, and was 202 days old on the date of mating.

Trauger, David L., and Arnold O. Haugen. CORPORA LUTEA VARIATIONS OF WHITE-TAILED DEER. J. Wildl. Mgmt. 29(3): 487-492, 4 figs. July 1965. WR 119: 39
[Iowa State Univ., Ames.] Abstract: The reproductive tracts of 404 female white-tailed deer (Odocoileus virginianus) were studied for information on size, shape, and coloration of corpora lutea. Corpora lutea in fawns are regarded as regressing if they are less than 4.0 mm in diameter at the time when the rut for that age-class is nearing its end. In all age-groups of does where fetal membranes or embryos are present, corpora lutea smaller than 6.0 mm are regarded as regressing. These small ones are regarded as corpora lutea of an earlier heat and not as corpora lutea of the current pregnancy. Regressing corpora lutea of a previous ovulation also appear to have an irregular surface shape. Color is not a dependable criterion for differentiation of the two types of corpora lutea.

Verme, Louis J. SWAMP CONIFER DEERYARDS IN NORTHERN MICHIGAN / THEIR ECOLOGY AND MANAGEMENT. J. Forestry 63(7): 523-529, 6 figs. July 1965. WR 119: 39
[Cusino Wildl. Res. Sta., Shingleton, Mich.] Abstract: A study of winter range use by white-tailed deer (Odocoileus virginianus) in conifer swamps of Michigan's Upper Peninsula indicated that all-age forests were uninhabited, despite an abundance of browse, because shelter requirements were lacking. Interspersion of food and cover on small, diverse tracts promptly led to

overuse of white-cedar (Thuja occidentalis), followed by herd die-offs. Habitat of high carrying capacity was characterized by various large even-aged stands. Findings suggest deeryard management should aim at creating, within a compartment, five age classes of timber with 15 to 20 years between classes, and a rotation cycle of 80 to 100 years. Clearcutting by the alternate-strip method, on blocks between 40 and 160 acres, is recommended. Units supplying browse or shelter must be arranged to regulate winter deer activity and minimize forest damage.

MAMMALS--MARINE

Arsen'ev, V. A. [WHALE MARKING.] Migratsiya Zhivotnykh. Akad. Nauk SSSR (Moscow) 1: 161-169. 1959. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1960, no. 56072. Transl. of Russian abstr.] WR 119: 40

A history is given of whale fishing and marking. The methods and results of whale fishing in the USSR and other countries are discussed. England has marked 13,000 whales and the USSR 900, of which 500 were marked in the Antarctic (mainly finback whales (Balaenoptera physalus) and about 400 (mainly sperm whales) in the seas of the Far East. Whale marking calls for a specially equipped whaleboat.

Brown, S. G. WHALE MARKS RECOVERED IN THE ANTARCTIC WHALING SEASON 1962/63 AND IN SOUTH AFRICA 1963. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 53(10): 277-280. Oct. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 40

Brown, S. G. WHALE MARKS RECOVERED IN THE ANTARCTIC WHALING SEASON 1963/64. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 53(10): 280-281. Oct. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 40

Clarke, Robert, Anelio Aguayo L., and Obla Paliza G. PROGRESS REPORT ON SPERM WHALE RESEARCH IN THE SOUTHEAST PACIFIC OCEAN. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 53(11): 297-302. Nov. 1964. [From J. Mammal. 46 (3), 1965.] WR 119: 40

Dorofeev, S. V. [A CONTRIBUTION TO THE PROBLEM OF THE UTILIZATION OF FUR SEAL STOCKS.] Zool. Zhur. 42(7): 1111-1113. 1963. [From Biol. Abstr. 45 (24), 1964. In Russian with English summ.] WR 119: 40

[All-Union Res. Inst. Mar. Fish. Mgmt. & Oceanog., Moscow, USSR.]

Gaskin, D. E. RECENT OBSERVATIONS IN NEW ZEALAND WATERS ON SOME ASPECTS OF BEHAVIOUR OF THE SPERM WHALE (PHYSETER MACROCEPHALUS). Tuatara 12(2): 106-114. July 1964. [From J. Mammal. 46(3), 1965.] WR 119: 40

Gaskin, D. E. RETURN OF THE SOUTHERN RIGHT WHALE (EUBALAENA AUSTRALIS DESM.) TO NEW ZEALAND WATERS, 1963. Tuatara 12(2): 115-118. July 1964. [From J. Mammal. 46(3), 1965.] WR 119: 40

Jonsgård, Åge. A RIGHT WHALE (BALAENA SP.), IN ALL PROBABILITY A GREENLAND RIGHT WHALE (BALAENA MYSTICETUS) OBSERVED IN THE BARENTS SEA. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 53(11): 311-313. Nov. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 40

Krylov, V. I. [DETERMINING THE AGE, GROWTH RATE, AND POPULATION AGE PATTERNS OF THE PACIFIC WALRUS.] In: (Second All-Union Conference for the Study of Marine Mammals, 1963.) Akad. Nauk SSSR (Moscow-Leningrad). p. 25-26. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 9I154. In Russian.] WR 119: 40

Marakov, S. V. [AN EXPERIMENT IN IMMOBILIZING FUR SEALS BY AN ELECTRIC CURRENT.] Sbornik Nauchn.-Tekhnol. Inform. Vses. Nauchn.-Issled. Inst. Zhivotnogo Syr'ya Pushniny 6(9): 67-69. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1963, no. 11217. Transl. of Russian abstr.] WR 119: 41

Pryor, Taylor, Karen Pryor, and Kenneth S. Norris. OBSERVATIONS ON A PYGMY KILLER WHALE (FERESA ATTENUATA GRAY) FROM HAWAII. J. Mammal. 46(3): 450-461, 5 figs. Aug. 1965. WR 119: 41
[Oceanic Foundation, Makapuu Point, Oahu, Hawaii.] Abstract: A living specimen of the little-known pygmy killer whale, Feresa attenuata Gray, was caught off the Kona coast of the island of Hawaii. It is found to be a relatively abundant inhabitant of Hawaiian waters. The occurrence and behavior of wild animals is discussed, as is the unusually aggressive behavior of the captive animal. Morphology of the captive animal is described.

Rice, Dale W. OFFSHORE SOUTHWARD MIGRATION OF GRAY WHALES OFF SOUTHERN CALIFORNIA. J. Mammal. 46(3): 504-505, 1 fig. Aug. 1965. WR 119: 41
[Marine Mammal Biol. Lab., Sand Point NAS, Seattle, Wash.]

Roppel, Alton Y., and Stuart P. Davey. EVOLUTION OF FUR SEAL MANAGEMENT ON THE PRIBILOF ISLANDS. J. Wildl. Mgmt. 29(3): 448-463, 2 figs. July 1965. WR 119: 41
[Bur. Commercial Fisheries, Marine Mammal Biol. Lab., Seattle, Wash.] Abstract: Management of the northern fur seal (Callorhinus ursinus) and development of techniques from indiscriminate killing to present-day harvesting of specific sex and age-groups are traced. Restricted to breeding on the Kurile, Robben, Commander, and Pribilof islands, fur seals were twice exploited almost to extinction before international protection was assured in 1911. Various controls used to regulate the kill of male seals on the Pribilof Islands since 1870 have included quotas, limitations on body length and skin weight, selection by age and secondary sex characteristics, and changes in length of killing season. Analysis of the kill and counts of live pups from 1912 to 1922 resulted in use of a 6-8 percent factor to calculate annual herd growth until 1948, when the system was abandoned as unrealistic. An average annual kill of 66,000 young males from 1939 to 1956 decreased to 48,000 annually from 1957 to 1964. Length classes were used from 1918 to determine the ages of seals until discovery in 1950 of a technique using annual growth layers on the roots of canine teeth. Management policies were revised in 1956 to permit a restricted kill of females. Since that year, 286,506 females have been taken on land. The kill of females has been controlled by quotas and by selection on the basis of body length and vibrissal color. It has been recently calculated that 9,000-18,000 females can be taken annually on the Pribilof Islands on a sustained basis.

Shomura, Richard S., and Thomas S. Hida. STOMACH CONTENTS OF A DOLPHIN CAUGHT IN HAWAIIAN WATERS. J. Mammal. 46(3): 500. Aug. 1965. WR 119: 41
[Bur. Commercial Fisheries Biol. Lab., Honolulu, Hawaii.]

Smith, M. S. R. SEASONAL MOVEMENTS OF THE WEDDELL SEAL IN McMURDO SOUND, ANTARCTICA. J. Wildl. Mgmt. 29(3): 464-470, 10 figs. July 1965. WR 119: 41
[Univ. Canterbury, Christchurch, New Zealand.] Abstract: This paper reports a study on the seasonal changes in abundance of the Weddell seal (Leptonychotes weddelli Lesson) in McMurdo Sound, Antarctica. Aerial reconnaissance flights and visual methods were used to count the seals lying on the ice. The seals have a daily feeding cycle resulting in the largest number lying on the ice at 4 PM. The overwintering population was estimated at 250 and the maximum summer population at 2,670. The arrival of the seals in McMurdo Sound can be divided into two parts: (1) first influx of pregnant females in October, and (2) second influx of the main population November-December. There was a secondary buildup of seals in early February. Details of the first and second influx are shown by a study of the area from Knob Point to the confluence of the Erebus Glacier Tongue and Hut Point Peninsula. Statistical analysis showed that the numbers of seals lying on the ice was significantly related to wind velocity.

MAMMALS--MARINE--Continued

Vylegzhanin, A. F. [A DIPLOCOCCUS INFECTION OF THE CASPIAN SEAL.] In: (Reports of the All-Union Scientific Conference Dedicated to the 90th Anniversary of the Kazan Veterinary Institute.) (Kazan). p. 622-623. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1963, no. 24I250. Transl. of Russian abstr.] WR 119: 42

Infection with Diplococcus phocididae caspii was widespread among Caspian seals. In the winter of 1955-1956 about 30,000 seals (80% of the adult animals) died in the Caspian Sea. A description is given of the pathological changes in the organs.

Zemsky, V. A., and V. A. Boronin. ON THE QUESTION OF THE PYGMY BLUE WHALE TAXONOMIC POSITION. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 53 (11): 306-311. Nov. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 42

Zemsky, V. A., and D. D. Tormosov. SMALL RORQUAL (BALAENOPTERA ACUTOROSTRATA) FROM THE ANTARCTIC. Norsk Hvalfangst-Tidende (Norwegian Whaling Gazette) 53 (11): 302-305. Nov. 1964. [From J. Mammal. 46(3), 1965.] WR 119: 42

MAMMALS--OTHER GROUPS

Baley, E. H. M., P. J. Bentley, and A. R. Main. STUDIES ON WATER METABOLISM OF THE HILL KANGAROO, MACROPUS ROBUSTUS (GOULD), IN NORTHWEST AUSTRALIA. Ecology 46(4): 473-479, 4 figs. Early Summer 1965. WR 119: 42

[CSIRO, Canberra, Australia.] The hill kangaroo (Macropus robustus) is able to survive hot, arid conditions by using the protection of caves. When kept on a dry diet and no water, the animals survived a water loss corresponding to 20-30% of their body weight during five days.--From abstr.

Freshwater, I. T. WALLABY CONTROL SUGAR CANE. Cane Growers Quart. Bull. 27(4): 120-121, illus. 1964. [From Biol. Abstr. 45(24), 1964.] WR 119: 42

[Bur. Sugar Expt. Sta., Brisbane, Queensland, Australia.] Blood meal, at 100-150 lbs./acre, dusted on the cane early in the morning, is recommended as a wallaby repellent.

Holloway, Harry L., Jr., and Janet L. Dowler. THE HELMINTHS OF OPOSSUMS IN WESTERN VIRGINIA. Va. J. Sci. 14(4): 203. 1963. [From Biol. Abstr. 45(21), 1964.] WR 119: 42

Abstract only.

Murphy, Dennis Wilson. HELMINTH PARASITES OF THE VIRGINIA OPOSSUM, DIDELPHIS MARSUPIALIS VIRGINIANA, WITH NOTES ON ITS LIFE HISTORY IN SOUTHEASTERN MICHIGAN. M.S. thesis, Univ. Mich. 1962. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 42

Packer, Wayne C. ENVIRONMENTAL INFLUENCES ON DAILY AND SEASONAL ACTIVITY IN SETONIX BRACHYURUS (QUOY AND GAIMARD) (MARSUPIALIA). Animal Behaviour 13 (2&3): 270-283, 6 figs. Apr.-July 1965. WR 119: 42

[Univ. Western Australia, Nedlands.]

BIRDS--GENERAL

Aliev, F. F., and A. I. Khanmamedov. [THE RESULTS AND PROSPECTS OF ACCLIMATIZING BIRDS IN THE TRANSCAUCASUS.] In: (The acclimatization of animals in the USSR.) Akad. Nauk Kirgizsk. SSR (Alma-Ata). p. 50-51. 1963. [From Biol. Abstr. 45(17), 1964, from Referat. Zhur., Biol., 1963, no. 17I168. In Russian.] WR 119: 42

BIRDS--GENERAL--Continued

Bartlett, Guy. [TEN-YEAR INDEX, VOLUMES I-X, 1950-1960.] Kingbird. 27 p. 1965. Copies available from Treasurer, Federation of N. Y. State Bird Clubs, Inc., 61 Broadway, Monticello, N. Y., at $1.00 postpaid. WR 119: 43
A topical index that "highlights rather than itemizes all the items that appeared in the more than 1350 pages." Following two sections dealing with details of operations (pagination, issue dates, editors and member clubs and activities) there is a section on authors and regional editors, a topical index section, a regional report section, and a section entitled "Species Highlights."

Borodikhin, I. F. [THE ACCLIMATIZATION OF BIRDS IN ALMA-ATA.] In: (The acclimatization of animals in the USSR.) Akad. Nauk Kazakhsk. SSR (Alma-Ata). p. 65-66. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 24I184. In Russian.] WR 119: 43

Kridler, Eugene. RECORDS, OBTAINED WHILE BANDING, OF BIRDS UNUSUAL IN SOUTHEASTERN OREGON. Auk 82(3): 496-497. July 1965. WR 119: 43
[835 Akumu St., Kailua, Hawaii.] Distributional notes on 9 spp.

Leach, Mrs. Robert. EXPERIENCES WITH A HELIGOLAND TRAP. Bird-Banding 36 (3): 179-184, 2 figs. July 1965. WR 119: 43
[Rt. 10, South St. Paul, Minn.] "The cost of building a trap of this size is not justified unless there are two or more banders involved."

Nickell, Walter P. BIRDS AND INSECTS FEED AT SAPSUCKER TREES. Bird-Banding 36(3): 192-193. July 1965. WR 119: 43
[Cranbrook Inst. Sci., Bloomfield Hills, Mich.] A list of five species of birds and five species of insects visiting a series of sapsucker wells during a half hour of observation.

Ptushenko, E. S. [PRESERVATION OF NESTS AMONG BIRDS.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 158-159. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 6I223. In Russian.] WR 119: 43

BIRDS--MORPHOLOGY, PHYSIOLOGY, BEHAVIOR, MIGRATION

Bang, B. G. COMPARATIVE STUDIES OF THE NASAL ORGANS OF BIRDS. I. A STUDY OF 28 SPECIES OF BIRDS OF WEST BENGAL. Pavo(Indian J. Ornithol.) 1(2): 79-89, illus. 1963. [From Biol. Abstr. 45(22), 1964.] WR 119: 43
[Johns Hopkins Univ., Baltimore, Md.]

Blum, P. N. [SEASONAL DISTRIBUTION AND MIGRATION OF SOME SPECIES OF LATVIAN SHORE BIRDS ACCORDING TO BANDING DATA.] Trudy Inst. Biol. Akad. Nauk Latviisk. SSR 22: 57-70. 1962. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1963, no. 15I203. Transl. of Russian abstr. Original with English summ.] WR 119: 43

Blyumental', T. I. [ANOTHER STUDY OF RELATIONSHIPS BETWEEN THE FAT RESERVES AND MIGRATION BEHAVIOR IN SMALL PASSERIFORMES.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 17-19. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 7I144. In Russian.] WR 119: 43

Blyumental', T. I., V. R. Dol'nik, V. B. Zimin, G. A. Noskov, L. P. Uryadova, and Kh. Shil'dmakher. [LATITUDINAL GEOGRAPHICAL DIFFERENCES IN THE PROPORTION AND PERIODS OF MOULTING, PRE-MIGRATORY FAT DEPOSITION, AND THE BEGINNING OF AUTUMN MIGRATION IN THE CHAFFINCH (FRINGILLA COELEBS L.).] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 19-21. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 7I148. In Russian.] WR 119: 43

Chernov, Yu. I. [SOME FEATURES OF TROPHIC INTERRELATIONS IN TUNDRA COMMUNITIES, AS EXEMPLIFIED BY ENTOMOPHAGOUS BIRDS.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 233-235. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 11I211. Transl. of Russian abstr.] WR 119: 44

Child, G. OBSERVATIONS OF AGGRESSIVE COMPETITION FOR FOOD AMONG BIRDS IN THE KARIBA BASIN. Ostrich 35(1): 55-57. 1964. [From Biol. Abstr. 45(19), 1964.] WR 119: 44
[Natl. Museum, Bulawayo, S. Rhodesia.]

Dixon, Keith L. DOMINANCE-SUBORDINATION RELATIONSHIPS IN MOUNTAIN CHICKADEES. Condor 67(4): 291-299, 1 fig. July-Aug. 1965. WR 119: 44
[Utah State Univ., Logan.] Mountain chickadees (Parus gambeli) traveled in winter in small flocks that exhibited peck-right dominance relations. Interflock encounters were characterized by more pronounced hostility than intraflock encounters. Interflock contests fit the concept of "peck-dominance" but achieved results similar to territorial responses. "Since 'peck-dominance' has not been demonstrated as a form of internal organization in unconfined groups of vertebrates, continued use of the term is questioned."

Dobrinskii, L. N. [AN ECOLOGICAL ANALYSIS OF THE INTERNAL FEATURES OF BIRDS OF NORTHWESTERN SIBERIA.] In: (Problems of zoological research in Siberia.] Knigoizdat (Gorno-Altaisk). p. 75-77. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 23I114. Transl. of Russian abstr.] WR 119: 44

Dobrynina, I. N. [SEXUAL AND DEVELOPMENTAL (AGE) CHANGES AND SOME FEATURES OF THE SEX AND AGE OF CHAFFINCHES (FRINGILLA COELEBS) DURING THEIR AUTUMN FLIGHT.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 55-57. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 7I175. In Russian.] WR 119: 44

Dol'nik, V. R. [BIOENERGETIC ADAPTATION TO MIGRATION IN PASSERIFORMES.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 61-63. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 7I146. In Russian.] WR 119: 44

Dol'nik, V. R. [METABOLIC REGULATION OF THE MIGRATORY STATE AND BEHAVIOR IN PASSERIFORMES.] Soobshch. Pribaltiisk Kom. Po Izucheniyu Migratsii Ptits. Akad. Nauk Estonsk. SSR 2: 81-88. 1963. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1964, no. 7I142. Transl. of Russian abstr. Original with English summ.] WR 119: 44

Dol'nik, V. R., T. I. Blumental', I. N. Dobrynina, G. M. Orlova, and Yu. E. Keskpaik. [PHYSIOLOGICAL ANALYSIS OF THE AUTUMN PRE-MIGRATORY PERIOD IN THE CHAFFINCH (FRINGILLA COELEBS L.).] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 63-65. 1963. [From Biol. Abstr. 45 (23), 1964, from Referat. Zhur., Biol., 1964, no. 7I149. In Russian.] WR 119: 44

Doran, Garry. BEHAVIOUR OF THE FULMAR (FULMARUS GLACIALIS) AT THE NEST SITE. Irish Nat. J. 14(8): 172-174. 1963. [From Biol. Abstr. 45(23), 1964.] WR 119: 44

Elliott, Bruce G., and John Davis. ALLOPREENING IN THE GRAY-BARRED WREN. Condor 67(4): 352. July-Aug. 1965. WR 119: 44
[Silver City, N. Mex.] The preening of one gray-barred wren (Campylorhynchus megalopterus) by another bird of the same species is described.

George, J. C. SOME OBSERVATIONS ON THE BREEDING BEHAVIOR OF THE INDIAN ROBIN, SAXICOLOIDES FULICATA (LINNAEUS). Pavo (Indian J. Ornithol.) 1(2): 71-78, illus. 1963. [From Biol. Abstr. 45(22), 1964.] WR 119: 45
[M. S. Univ., Fac. Sci., Baroda, India.]

Goodwin, Derek. A COMPARATIVE STUDY OF CAPTIVE BLUE WAXBILLS (ESTRILDIDAE). Ibis 107(3): 285-315, 5 figs. July 1965. WR 119: 45
[40 Frankfurt Rd., Herne Hill, London, England.] "Uraeginthus a. angolensis, U. b. bengalus and U. cyanocephalus."

Graber, Richard R., and Jean W. Graber. VARIATION IN AVIAN BRAIN WEIGHTS WITH SPECIAL REFERENCE TO AGE. Condor 67(4): 300-318, 9 figs. July-Aug. 1965. WR 119: 45
[Ill. Nat. Hist. Surv., Urbana.] In all passerines for which data are available, brain weight reaches a peak before skull ossification is completed, then declines as the bird matures. In this pattern of growth and decline, there appears to be greater similarity between altricial birds and mammals than between altricial birds and precocial birds. The decline in brain weight associated with maturation involves mainly a loss of water from the brain. In nearly all species examined, the actual weight of lipids in the brain was higher in full grown immatures than in adults. Lipid content of the brain probably reaches a peak either late in juvenal life or in young adult life, and then it declines. That the percentage of fat in the brain is higher in adults than in juveniles merely reflects the great weight loss, through dehydration, which accompanies maturation. The brain continues to lose weight beyond the time when other commonly used marks of age disappear. If the brain continues to lose weight throughout the life of the individual, then brain weight data may have utility in ageing specimens for population studies.--From summ.

Grant, P. R. THE FAT CONDITION OF SOME ISLAND BIRDS. Ibis 107(3): 350-356, 3 figs. July 1965. WR 119: 45
[Yale Univ., New Haven, Conn.] Summary: Several resident passerine species of birds on the Tres Marías Islands, Mexico, are in a fatter condition than their mainland counterparts just prior to, and at the beginning of, the breeding season. At least two non-passerine species on the islands are also fat at this time of the year. The significance of the fat reserves of the island birds is discussed, and it is concluded that the fat may serve the functions of energy-storage and possibly water-storage, to be used later at the climatically most unfavourable time of the year.

Gyngazov, A. M. [NUTRITION AND ECONOMIC IMPORTANCE OF BIRDS IN THE REGION OF THE NOVOSIBIRSK RESERVOIR.] Uch. Zap. Tomsk. Univ. 44: 158-166. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 19I123. Transl. of Russian abstr.] WR 119: 45
In 1956-60 more than 800 stomachs and 290 excreta of 88 bird species were examined.

Haverschmidt, F. VARIATIONS IN PLUMAGE OF MALE AND FEMALE PIPRA AUREOLA. Auk 82(3): 502. July 1965. WR 119: 45
[Paramaribo, Surinam.] "Golden-headed manakins."

Holcomb, Larry C. LONG NEST ATTENTIVENESS FOR A CARDINAL. Condor 67(4): 359. July-Aug. 1965. WR 119: 45
[Midland Lutheran Coll., Fremont, Nebr.] A female cardinal (Richmondena cardinalis) incubated a clutch at least 27 days without the eggs hatching.

I1'ichev, V. D. [EXTERNAL ANALYZOR COMPONENTS AND THE "MODE OF LIFE" IN BIRDS.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 1: 163-166. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 11I129. Transl. of Russian abstr.] WR 119: 45

Kashkarov, D. [SOME DATA ON THE ECOLOGY OF THE FALL MIGRATION OF LAMELLIROSTRES ON THE MIDDLE REACHES OF THE SYR-DAR'YA RIVER.] Nauchn. Trudy Tashkentsk. Univ. 204: 33-40. 1962. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 1I186. Transl. of Russian abstr.] WR 119: 46

Kilham, Lawrence. DIFFERENCES IN FEEDING BEHAVIOR OF MALE AND FEMALE HAIRY WOODPECKERS. Wilson Bull. 77(2): 134-145. June 1965. WR 119: 46
[Dartmouth Med. School, Hanover, N. H.] Feeding movements of female hairy woodpeckers (Dendrocopus villosus) were more vigorous than movements of males and resulted in removal of more bark. Because removal of the bark from dead elm trees makes available the eggs and larva of elm bark beetles (Hylurgopinus rufipes), female hairy woodpeckers feed on these items more than do males.

Lanyon, Wesley E., and Frank B. Gill. SPECTROGRAPHIC ANALYSIS OF VARIATION IN THE SONGS OF A POPULATION OF BLUE-WINGED WARBLERS (VERMIVORA PINUS). Am. Museum Novitates 2176: 1-18, illus. 1964. [From Biol. Abstr. 45(17), 1964.] WR 119: 46
[Am. Museum Nat. Hist., New York, N. Y.]

Lyuleeva, D. S. [PRELIMINARY ANALYSIS OF THE MORPHO-PHYSIOLOGICAL STATUS OF SWALLOWS (HIRUNDINIDAE) IN THE FLIGHT AND NESTING PERIOD.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 114-116. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 7I150. In Russian.] WR 119: 46

Meaden, F. M., and C. J. O. Harrison. COURTSHIP DISPLAY IN THE WAXWING. British Birds 58(6): 206-208, 1 pl. June 1965. WR 119: 46
"Bombycilla garrulus."

Middleton, Jane. TESTICULAR RESPONSES OF HOUSE SPARROWS AND WHITE-CROWNED SPARROWS TO SHORT DAILY PHOTOPERIODS WITH LOW INTENSITIES OF LIGHT. Physiol. Zoöl. 38(3): 255-266, 5 figs. July 1965. WR 119: 46
[Washington State Univ., Pullman.]

Mikheev, A. V. [SOME ECOLOGIC STIMULI OF SEASONAL BIRD MIGRATIONS.] Ornitologiya 5: 324-329. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 11I172. Transl. of Russian abstr.] WR 119: 46

Mikheev, A. V. [SOME PROBLEMS OF THE ORIGINS OF BIRD MIGRATIONS.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 125-127. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 7I153. In Russian.] WR 119: 46

Murray, Bertram G., Jr. ON THE AUTUMN MIGRATION OF THE BLACKPOLL WARBLER. Wilson Bull. 77(2): 122-133, 2 figs. June 1965. WR 119: 46
[Univ. Mich. Museum Zool., Ann Arbor.] Information is given to support the hypothesis that blackpoll warblers (Dendroica striata) migrate southwestward from the northeastern United States some distance before turning southeastward toward the winter range in South America and that some reach Bermuda as a result of being blown off course.

Nazarenko, L. F., and I. G. Gurskii. [THE EFFECT OF THE HYDROLOGICAL STATUS OF RIVERS ON THE BIOTOPIC DISTRIBUTION AND REPRODUCTION OF BIRDS.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 139-140. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 8I148. In Russian.] WR 119: 46

Nelson, J. B. THE BEHAVIOUR OF THE GANNET (PART 1). British Birds 58(7): 233-288, 13 figs. + 7 pls. July 1965. WR 119: 46
Morphology and voice, site establishment, pair formation and relationship, copulation and nest building in Sula bassana.

Nelson, J. B. THE BEHAVIOUR OF THE GANNET (PART 2). British Birds 58(8): 313-336, 4 figs. Aug. 1965. WR 119: 47
Egg laying, incubation, sky-pointing, comfort behavior and pelican posture in Sula bassana are treated in this, the concluding part of the article.

Nolan, Val, Jr. A MALE CARDINAL HELPER AT A NEST OF YELLOW-BREASTED CHATS. Wilson Bull. 77(2): 196. June 1965. WR 119: 47
[Ind. Univ., Bloomington.] A male cardinal (Richmondena cardinalis) was observed carrying food and feeding nestling yellow-breasted chats (Icteria virens).

Nordstrom, Goran. EINIGE ERGEBNISSE DER VOGELBERINGUNG IN FINNLAND IN DEN JAHREN 1913-1962. [SOME RESULTS OF BIRD BANDING IN FINLAND 1913-1962.] Ornis Fennica 40(3): 81-123. 1963. [From Biol. Abstr. 45(24), 1964. In German.] WR 119: 47
[Zool. Mus. der Univ. Helsinki/Helsingfors, Finland.]

Olson, John Bernard. EFFECT OF TEMPERATURE AND SEASON ON THE BIOENERGETICS OF THE EASTERN FIELD SPARROW, SPIZELLA PUSILLA PUSILLA. Ph.D. thesis, Univ. Ill. 90 p. 1965. [From long abstr. in Dissertation Abstr. 26(1), 1965.] WR 119: 47
The energy requirements of the eastern field sparrow (Spizella pusilla pusilla), a temperate zone partial migrant, were obtained by calculating the caloric value of the food consumed minus the excrement voided during three-day periods for birds run outdoors throughout the year and for summer and winter acclimatized birds subjected to constant temperatures and photoperiods. It is suggested that field sparrows migrate in the autumn to escape continuous below-freezing temperatures and return north in spring due to competition for nesting territories. However, as some field sparrows tolerate the winter temperatures of their northern breeding grounds, it is suggested that the species is changing from a partial migrant to a permanent resident.

Paevskii, V. A. [CONSTANCY OF INDIVIDUAL DATES AND ROUTES OF SEASONAL MIGRATION OF BIRDS.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 131-132. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 11I174. In Russian.] WR 119: 47

Parnell, James Franklin. ANALYSIS OF HABITAT RELATIONS OF THE PARULIDAE PASSING THROUGH THE RALEIGH, NORTH CAROLINA, REGION DURING THE SPRING MIGRATION. Ph.D. thesis, N. C. State Univ. 94 p. 1964. [From abstr. in Dissertation Abstr. 26(2), 1965.] WR 119: 47
Nearly all species were found to exhibit definite habitat selection during migration. Those species which were able to find habitats during migration that were similar to their preferred nesting sites showed selection for these habitats during migration. Those species that nested in the northern coniferous forests, and could find no similar habitats in the study area, were less selective.

Poslavskii, A. N. [MIGRATORY BIRD FLIGHTS IN THE NORTHERN CASPIAN REGIONS.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 252-253. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 11I190. Transl. of Russian abstr.] WR 119: 47
Quantitative and qualitative analyses of migratory flights in four directions are presented, including overall number of species (open space, aquatic, dendrophile species and near water species) and the abundance of some divers.

Pulliainen, Erkki. OBSERVATIONS ON THE AUTUMNAL TERRITORIAL BEHAVIOUR OF THE GREAT SPOTTED WOODPECKER, DENDROCOPOS MAJOR (L.). Ornis Fennica 40(4): 132-139. 1963. [From Biol. Abstr. 45(24), 1964.] WR 119: 47
[Univ. Helsinki, Helsinki, Finland.]

Rakhilin, V. K. [COMMON NESTING OF STURNIA STURNINA AND TREE SPARROW PASSER MONTANUS.] Ornitologiya (Moscow) 6: 481. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 10I172. In Russian.] WR 119: 48

Raveling, Dennis G., and Dwain W. Warner. PLUMAGES, MOLT AND MORPHOMETRY OF TENNESSEE WARBLERS. Bird-Banding 36(3): 169-179. July 1965. WR 119: 48
[Southern Ill. Univ., Carbondale.] Age and sex differences based on examination of about 2000 specimens are described.

Rising, James D. NOTES ON BEHAVIORAL RESPONSES OF THE BLUE-THROATED HUMMINGBIRD. Condor 67(4): 352-354, 1 fig. July-Aug. 1965. WR 119: 48
[Univ. Kans., Lawrence.] A description of the agonistic behavior of three blue-throated hummingbirds (Lampornis clemenciae) at a feeder.

Semashko, L. L. [NOTES ON THE ECOLOGY OF THE HOUSE SPARROW IN SOUTHERN TURKMENISTAN.] Trudy Ashkhabadsk Nauchn.-Issled Inst. Epidemiol. & Gig. 5: 225-233. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 24I170. Transl. of Russian abstr.] WR 119: 48

Shuntov, V. P. [TRANSEQUATORIAL MIGRATIONS OF THE STORM PETREL (PUFFINUS TENUIROSTRIS).] Zool. Zhur. 43(4): 590-598, maps. 1964. [From Biol. Abstr. 45(23), 1964. In Russian with English summ.] WR 119: 48
[Pacific Res. Inst. Mar. Fish. Oceanog., Vladivostok, USSR.]

Smogorzhevskii, L. A. [EFFECT OF WIND SPEED ON RETURNS OF HIRUNDO RUSTICA TO ITS NEST WITH FOOD.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 188-189. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 12I194. Transl. of Russian abstr.] WR 119: 48

Stal'makova, V. A. [NOTES ON THE ECOLOGY OF THE BIRDS OF THE EASTERN KARA-KUM SANDS.] In: (Working experience of the Repetek Sands and Desert Station.) Akad. Nauk Turkmensk. SSR (Ashkhabad). p. 107-123. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 5I189. Transl. of Russian abstr.] WR 119: 48

Stickel, David W. WING-STRETCHING OF RED-BELLIED WOODPECKERS. Auk 82(3): 503. July 1965. WR 119: 48
[Univ. Texas, Austin.] A description of wing-stretching by the red-bellied woodpecker (Centurus carolinus).

Stromar, Ljubica. [BIRD-BANDING IN 1960 BY BIOLOGICAL INSTITUTE OF THE UNIVERSITY OF ZAGREB. FOREIGN RECOVERIES MADE IN YUGOSLAVIA.] Larus 15: 7-27, illus. 1961 [1963]. [From Biol. Abstr. 45(19), 1964. In Serbo-Croatian with English summ.] WR 119: 48
[Biol. Inst., Univ. Zagreb, Zagreb, Yugoslavia.] The number of birds ringed was 9689, from these 5448 as young birds in the nest. There were 116 recoveries (21 as control-recoveries) with our rings, and 78 recoveries from birds carrying other rings from 12 foreign lands as: Czechoslovakia, Russia, Hungary, Germany, France, Finland, Italy, Belgium, Holland, England, Sweden and Poland.

Taylor, Walter Kingsley. NESTING HEIGHTS OF SOME LOUISIANA BIRDS. Wilson Bull. 77(2): 146-150. June 1965. WR 119: 48
[Ariz. State Univ., Tempe.] With observations on height above the ground of 522 nests of 28 spp. of birds.

Taylor, Walter K., and John W. Goertz. ADDITIONAL RECORDS OF BROWN THRASHERS PARASITIZED BY THE BROWN-HEADED COWBIRD. Wilson Bull. 77(2): 194-195. June 1965. WR 119: 48
[Ariz. State Univ., Tempe.] Three unsuccessful cases are reported of brown-headed cowbirds (Molothrus ater) parasitizing nests of the brown thrasher (Toxostoma rufum).

Tucker, Don. ELECTROPHYSIOLOGICAL EVIDENCE FOR OLFACTORY FUNCTION IN BIRDS. Nature 207(4992): 34-36, 1 fig. 3 July 1965. WR 119: 49
[Fla. State Univ., Tallahassee.]

Veghte, James H., and Clyde F. Herreid. RADIOMETRIC DETERMINATION OF FEATHER INSULATION AND METABOLISM OF ARCTIC BIRDS. Physiol. Zoöl. 38(3): 267-275, 1 fig. + 4 figs. on 4 pls. July 1965. WR 119: 49
[Aerospace Med. Res. Lab., Wright-Patterson AFB, Ohio.]

Wilcock, John. DETECTION BY RADAR OF AUTUMN MIGRATION IN EASTERN SCOTLAND. Ibis 107(3): 316-325. July 1965. WR 119: 49
[Med. School, Birmingham Univ., Birmingham, England.] Summary: Radar observations through one autumn in Aberdeenshire are described showing that more migration takes place in anticyclonic weather than transitional weather, and even less migration takes place in disturbed weather. More migration is detected by radar with following winds than with opposed winds. Comparison of data collected in Norfolk and Aberdeenshire during one season at each shows that more migration is detected by radar in Norfolk, and westward movements, which are a feature of migration into Norfolk, appear in Aberdeenshire only when birds are first drifted northwards. Dawn ascent and reorientation movements of birds in the northern North Sea are described, showing that changes in heading were consistently between S.W./S.S.W. and S.S.E. during the autumn studied. Weather data, radar data and ground observer data from Aberdeenshire and the Isle of May Bird Observatory were analyzed and show again that the normal migration pattern is to fly high with following winds and low only with opposing winds as in Norfolk. However, the weather in Aberdeenshire was more disturbed than it had been in Norfolk, with the consequence that weather factors, other than wind, which affect the normal migration pattern were found to be much more common.

Wingate, David B., and James Baird. BLACKPOLL WARBLER BANDED IN BERMUDA RECOVERED IN NORTH CAROLINA. Bird-Banding 36(3): 192. July 1965. WR 119: 49
[P. O. Box 437, Hamilton, Bermuda.] An immature blackpoll warbler (Dendroica striata) was banded in Bermuda during the fall of 1962 and recovered in North Carolina during Nov. 1963.

Wust, Walter. ERMITTLUNG UND AUSSAGEWERT DER VERWEILDAUER ZUGDISPONIERTER VÖGEL. [ASCERTAINMENT AND EVALUATION OF THE DURATION OF STAY OF MIGRATORY BIRDS.] Proc. Internatl. Ornithol. Congr. 13: 493-498. 1963. [From Biol. Abstr. 45(21), 1964.] WR 119: 49
[Univ. Munchen, Munich, W. Germany.]

Yakobi, V. E. [AN ECOLOGIC-MORPHOLOGICAL METHOD OF STUDYING MIGRATORY FLIGHTS OF BIRDS.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 259-260. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 11I112. Transl. of Russian abstr.] WR 119: 49

Yakobi, V. E. [ADAPTIVE SIGNIFICANCE OF FLOCK BEHAVIOR IN BIRDS.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 206-208. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1964, no. 8I157. In Russian.] WR 119: 49

Yarbrough, Charles G., and David W. Johnston. LIPID DEPOSITION IN WINTERING AND PREMIGRATORY MYRTLE WARBLERS. Wilson Bull. 77(2): 175-191, 4 figs. June 1965. WR 119: 49
[Univ. Mich., Ann Arbor.] Myrtle warblers (Dendroica coronata) of Fla. and S. C. changed their diets in spring from plant to insect material. Accompanying the change was an increase in lipid deposition, the increase presumably being incidental to the change in diet but correlated with premigratory metabolism. The increase in lipid level appeared due to increases in the amount of glycerides present. The earliest migration from the region in early

April started when the birds had low lipid contents, but early movements covered only short distances. By the middle of May myrtle warblers contained peak lipid levels (as much as 20% of body weight), and movement then covered longer distances and was more hurried.

BIRDS--MANUALS, FAUNAS, COMMUNITIES

Cramp, Stanley, and I. J. Ferguson-Lees. THE BIRDS OF THE DANUBE DELTA AND THEIR CONSERVATION. British Birds 56(9): 323-339, 1 fig. + 8 pls. Sept. 1963. WR 119: 50
Comparisons are made of the breeding season populations of the deltas of the Danube (Rumania), Guadalquivir (Spain) and Rhône (France).

Duchits, V. N. [BIRD FAUNA OF THE UPLAND BOGS OF THE BSSR AND ITS CHANGE IN RELATION TO AGRICULTURAL ACTIVITY.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 1: 139-140. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 7I179. Transl. of Russian abstr.] WR 119: 50

Fisher, Harvey I. BIRD RECORDS FROM MIDWAY ATOLL, PACIFIC OCEAN. Condor 67(4): 355-357. July-Aug. 1965. WR 119: 50
[Southern Ill. Univ., Carbondale.] Occurrence records for 19 spp.

Gyngazov, A. M. [THE BIRD FAUNA OF THE OB' RIVER VALLEY.] Trudy Tomskogo Univ. 152: 302-317. 1963. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1964, no. 8I150. Transl. of Russian abstr.] WR 119: 50

Ivanter, E. V. [THE NUMBER, DISTRIBUTION, AND AUTUMN FLIGHT OF BIRDS IN THE CHUPINSKAYA BAY REGION OF THE WHITE SEA.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 74-77. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 7I155. In Russian.] WR 119: 50

Kostin, Yu. V., E. P. Spangenberg, and A. A. Tkachenko. [NOTES ON THE BIRD FAUNA OF THE MOUNTAIN FOREST AREAS OF THE CRIMEA.] Sbornik Rabot po Lesovodstvu & Okhotovedeniyu. Krymskoe Gosudarstvennoe Zapoveno-Okhotnich'e Khoz. 7: 89-96. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 20I189. Transl. of Russian abstr.] WR 119: 50
Data on the phenology, ecology and (in part) hunting and preserving of quail, rock partridge, woodcock, lesser black-backed gull, Manx shearwater, whooper swan, nightingale and 11 other spp. are given.

Loftin, Horace. NOTES ON AUTUMN BIRD MIGRANTS IN PANAMA. Caribbean J. Sci. 3(1): 63-68. 1963. [From Biol. Abstr. 45(22), 1964.] WR 119: 50
[Fla. State Univ., Tallahassee.] Observations on 57 spp. of North American migratory birds in Panama during autumn of 1961 and 1962 are presented.

McCandless, James B. BIRDLIFE IN SOUTHWESTERN PUERTO RICO. II. THE WINTER SEASON. Caribbean J. Sci. 2(1): 27-39. 1962. [From Biol. Abstr. 45(22), 1964.] WR 119: 50
[Box 1079, Mayaguez, Puerto Rico.]

Murray, J. J., Sr. AN ANALYSIS OF THE VIRGINIA AVIFAUNA. Va. J. Sci. 14 (4): 208. 1963. [From Biol. Abstr. 45(19), 1964.] WR 119: 50
[Va. Soc. Ornithol., Lexington.] Abstract only.

Ripley, S. Dillon. A SYSTEMATIC AND ECOLOGICAL STUDY OF BIRDS OF NEW GUINEA. Peabody Museum Nat. Hist. Yale Univ. Bull. 19: 1-87, illus., map. 1964. [From Biol. Abstr. 45(22), 1964.] WR 119: 50
[Smithsonian Inst., Washington, D. C.]

Rutilevskii, G. L. [BIRDS FROM STOLBOVYI ISLAND.] Trudy Arktichesk Antarktichesk Nauchn.-Issled. Inst. 224: 93-117. 1963. [From Biol. Abstr. 45 (23), 1964, from Referat. Zhur., Biol., 1963, no. 17I122. Transl. of Russian abstr.] WR 119: 51

Vil'baste, Kh. G. [POPULATION DENSITY OF BIRDS IN OAK WOODS AND ASPEN GROVES OF THE MATSALU STATE NATIONAL FOREST.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 33-34. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 6I225 In Russian.] WR 119: 51

Volchanetskii, I. B. [ENDEMIC FORMS OF THE CRIMEAN BIRD FAUNA, DISCUSSED FROM THE STANDPOINT OF GEOGRAPHIC VARIABILITY PATTERNS.] Uch. Zap. Khar'kovsk. Univ. Trudy Nauchn.-Issled. Inst. Biol. Biol. Fak. 130(32): 73-87. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 17I92. Transl. of Russian abstr.] WR 119: 51

Winterbottom, J. M. REPORT ON THE BIRDS OF GAME RESERVE NO. 2. Cimbebasia 9. 75 p., 2 maps. 1964. WR 119: 51
[Univ. Cape Town, Cape Town, Cape of Good Hope, Union South Africa.] Basically a systematic annotated list of the birds of the Etosha Pan Game Reserve in northern South West Africa. There is a section devoted to a summary of the avian ecology of the area survey.

Zaletaev, V. S. [SEASONAL ASPECTS OF BIRD LIFE FROM COASTLINE AND DESERTS OF THE CASPIAN REGION (MANGYSHLAK AND BUZACHI).] Ornitologia 5: 168-174. 1962. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1963, no. 11I205. Transl. of Russian abstr.] WR 119: 51

BIRDS--POPULATIONS & FLUCTUATIONS

Barrett, John H., and M. P. Harris. A COUNT OF THE GANNETS ON GRASSHOLM IN 1964. British Birds 58(6): 201-203, 1 fig. + 2 pls. June 1965. WR 119: 51
Sula bassana has increased from 20 pairs in 1883 to about 15,500 pairs in 1964 on Grassholm off the Pembrokeshire coast.

Beven, Geoffrey. POPULATION CHANGES IN A SURREY OAKWOOD DURING FIFTEEN YEARS. British Birds 56(9): 307-323, 2 figs. Sept. 1963. WR 119: 51
For the period 1946-1963.

Cortopassi, Angelo J., and L. Richard Mewaldt. THE CIRCUMANNUAL DISTRIBUTION OF WHITE-CROWNED SPARROWS. Bird-Banding 36(3): 141-169, 9 figs. July 1965. WR 119: 51
[San Jose State Coll., San Jose, Calif.] The mean life span of 198 banded white-crowned sparrows (Zonotrichia leucophrys) was about 16 months. White-crowned sparrows migrate southwestward from northeastern U. S. and southward from northcentral U. S. Birds return in successive migrations to the same breeding and wintering areas. Banding data indicated that one bird traveled 310 miles in one day (night).

Hudson, Robert. SUMMARY OF FOREIGN-RINGED BIRDS IN BRITAIN AND IRELAND DURING 1906-63. British Birds 58(3): 87-97. Mar. 1965. WR 119: 51
With a table indicating the country of banding for 10,981 birds of 145 spp. recovered in Great Britain and Ireland. North America is represented by five recoveries of four species, including pintail (Anas acuta), knot (Calidris canutus), Caspian tern (Hydroprogne caspia), and arctic tern (Sterna paradisaea).

Luniak, Maciej. BADANIA NAD DYNAMIKA LICZEBNOSCI I KIERUNKAMI LOTOW NIEKTORYCH GATUNKOW LARIDAE NA WISLE POD WARSZAWA. [STUDIES ON THE QUANTITIES AND DIRECTION OF MOVEMENTS OF SOME LARIDAE ON THE VISTULA NEAR WARSAW.] Acta Ornithol. (Warsaw) 7(4): 89-113, illus., map. 1963. [From Biol. Abstr. 45 (22), 1964. In Polish with English and Russian summ.] WR 119: 52
[Inst. Zool., Polsky Acad. Nauk., Warsaw, Poland.]

Lyuleeva, D. S. [RESULTS OF TAGGING SWALLOWS (HIRUNDINIDAE) IN THE KURSHA SPIT FROM 1958 TO 1962.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 116-118. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 7I181. In Russian.] WR 119: 52

Paevskii, V. A. [PRELIMINARY ANALYSIS OF THE POPULATION COMPOSITION OF CHAFFINCHES (FRINGILLA COELEBS) MIGRATING THROUGH KURSHA SPIT.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 150-152. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 7I174. In Russian.] WR 119: 52

Priklonskii, S. G., and V. P. Teplov. [EXPERIENCE IN COUNTING THE POPULATIONS OF CAPERCAILLIE, CRANES, AND HERONS IN THE FORESTS OF THE CENTRAL OBLASTS OF THE EUROPEAN PART OF SOVIET RUSSIA.] Trudy Oksk Gos. Zapovednika 4: 33-64. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 10I142. Transl. of Russian abstr.] WR 119: 52

Vinogradov, V. V., and S. I. Chernyavskaya. [METHODS OF COUNTING LARGE NUMBERS OF AQUATIC AND STEPPE BIRDS WINTERING IN THE KYZYLAGACH PRESERVE.] In: (Organization and methods of counting birds and harmful rodents.) Akad. Nauk SSSR (Moscow). p. 83-90. 1963. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1964, no. 8I113. Transl. of Russian abstr.] WR 119: 52

Ward, Peter. SEASONAL CHANGES IN THE SEX RATIO OF QUELEA QUELEA (PLOCEIDAE). Ibis 107(3): 397-399. July 1965. WR 119: 52
[Univ. Singapore, Singapore.] During the dry season more females disappear than males.

Zykov, K. D. [AN EXPERIMENT ON COUNTING MEADOW BIRDS ALONG A CONSTANT ROUTE OF MARCH.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 1: 151-152. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 6I159. Transl. of Russian abstr.] WR 119: 52

BIRDS--ECONOMICS, CONTROL, MORTALITY

Avetisyan, O. R., and G. G. Manucharyan. [NEW CHEMICAL METHODS FOR THE CONTROL OF THE CAUCASIAN HOUSE SPARROW.] Izvest. Akad. Nauk Armyansk. SSR Biol. Nauki 16(5): 79-80. 1963. [From Biol. Abstr. 45(19), 1964. In Armenian with Russian summ.] WR 119: 52

Galushin, V. M. [CRITERIA FOR ESTIMATING THE ROLE OF PREDATORY BIRDS IN NATURE AND IN MAN'S ECONOMY.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 1: 91-94. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 18I138. Transl. of Russian abstr.] WR 119: 52

Hatch, Jeremy J. ONLY ONE SPECIES OF GALÁPAGOS MOCKINGBIRD FEEDS ON EGGS. Condor 67(4): 354-355. July-Aug. 1965. WR 119: 52
[Duke Univ., Durham, N. C.] Eggs of sea birds which were found cracked were eaten by the mockingbird (Nesomimus macdonaldi).

Ivanauskas, T. [WHERE DO THE SONG BIRDS DIE?] Okhota & Okhotnich'e Khoz. 8: 54-55. 1962. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1963, no. 6I173. Transl. of Russian abstr.] WR 119: 53

Statistics on market hunting of song birds in southern Europe. In Tunis, after insecticide dusting of groves where starlings nest, about 2 million dead migrating birds were found in the morning.

Manucharyan, G. G. [AGRICULTURAL IMPORTANCE OF THE CAUCASIAN HOUSE SPARROW.] Izvest. Akad. Nauk Armyansk. SSR Biol. Nauki 16(11): 77-86. 1963. [From Biol. Abstr. 45(24), 1964. (In Armenian) with Russian summ.] WR 119: 53

Marakov, S. V. [BIRD COLONIES ALONG THE SHORE OF MEDNYI ISLAND AND OPPORTUNITIES FOR THEIR PRACTICAL UTILIZATION.] Sbornik Nauchn.-Tekhnol. Inform. Vses. Nauchn.-Issled. Inst. Zhivotnogo Syr'ya & Pushniny 5(8): 51-65. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 3I233. Transl. of Russian abstr.] WR 119: 53

Each year 10,000 guillemot eggs and 2,000 fulmar eggs are collected and about 3,000 fulmars and 700-750 puffins (Fratercula arctica), shags, and glaucous-winged gulls are hunted. The author proposes that the hunting of birds in these colonies be expanded.

Nolan, Val, Jr., and Russell E. Mumford. AN ANALYSIS OF PRAIRIE WARBLERS KILLED IN FLORIDA DURING NOCTURNAL MIGRATION. Condor 67(4): 322-338. July-Aug. 1965. WR 119: 53

[Ind. Univ., Bloomington.] Based on examinations of 448 prairie warblers (Dendroica discolor) killed at a Florida TV tower. Contains discussions on plumages, measurements, migration schedules, population structure, molt, weight, fat content, bursa of Fabricius, and parasites.

Popov, A. V. [SPARROWS DESTRUCTIVE TO GRAIN CROPS IN TADZHIKISTAN AND THEIR EXTERMINATION.] Trudy Inst. Zool. & Parazitol. Akad. Nauk Tadzhik SSR 22: 26-38. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 5I227. Transl. of Russian abstr. Original with Tadzhik summ.] WR 119: 53

The only effective method of control is to use bait containing fluorinated compounds.

Samusenko, E. G. [EXTERMINATION OF BIRDS BY PREDATORY MAMMALS IN BELORUSSIYA.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 177-178. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 9I241. Transl. of Russian abstr.] WR 119: 53

Predator activity is an integral, but not the basic, factor regulating bird populations.

Tanis, J. J. C., and M. F. Mörzer Bruijns. HET ONDERZOEK NAAR STOOKOLIE-VOGELS VAN 1958-1962. [INVESTIGATIONS ON SEA BIRDS KILLED BY OIL POLLUTION (1958-1962).] Levende Nat. 65(6): 133-140. 1962. [From Biol. Abstr. 45(19), 1964. In Dutch.] WR 119: 53

Birds in the Netherlands killed by oil on the sea is tabulated for the years 1958-1962. The figures show a decline as compared with 1947-1958. The evidence is that this decline cannot be ascribed to a lessening of oil pollution. It is attributed to better diagnosis, fewer catastrophies, and to the distinct influence of wind direction. The size of the bird, the time of the year, and weather conditions appeared to influence the number of days birds cast ashore remain there in a recognizable state. Conversion factors were computed which make it possible to determine that at least 11,000 oil-killed birds are cast ashore annually in the Netherlands. Not all such birds drift ashore.

BIRDS--PARASITES AND DISEASES

Grubb, W. B. AVIAN BOTULISM IN WESTERN AUSTRALIA. Australian J. Exptl. Biol. Med. Sci. 42(1): 17-26, map. 1964. [From Biol. Abstr. 45(21), 1964.] WR 119: 54
[Univ. W. Australia, Perth, Australia.]

Locke, Louis N. ADDITIONAL RECORDS OF ASPERGILLOSIS AMONG PASSERINE BIRDS IN MARYLAND AND THE WASHINGTON, D. C. METROPOLITAN AREA. Chesapeake Sci. 6(2): 120-121. June 1965. WR 119: 54
[Patuxent Wildl. Res. Center, Laurel, Md.] Abstract: Two cases of aspergillosis involving four adult cowbirds (Molothrus ater) collected during the nesting season are reported. Aspergillosis was found in house sparrows (Passer domesticus) on two occasions.

Naumov, R. L., E. N. Levkovich, and O. E. Rzhakhova. [THE PART PLAYED BY BIRDS IN THE CIRCULATION OF TICK-BORNE ENCEPHALITIS VIRUS.] Med. Parazitol. & Parazitar. Bolezni 32(1): 18-29. 1963. [From Biol. Abstr. 45(20), 1964. In Russian with English summ.] WR 119: 54

GAME BIRDS--GENERAL

Rusanov, Ya. [THE IMPORTANCE FOR BREEDING SELECTION OF DIFFERENT HUNTING METHODS.] Okhota & Okhotnich'e Khoz. 5: 22-24. 1963. [From Biol. Abstr. 45 (24), 1964, from Referat. Zhur., Biol., 1963, no. 241289. Transl. of Russian abstr.] WR 119: 54
In a total of 295 ducks, 63 (21%) were defective. The percentage of defective birds increased toward the end of the hunting season. The maximum number of defects was noted in groups of birds which flushed not more than 10 m from the hunter (56%); among birds rising more than 30 m from the hunter there were no defects. The most common defect was inadequate development (46%); 16% were exhausted, 36% were wounded, 2% were malformed. Similar results were obtained in hunting for grouse with dogs. Two hundred seventy birds were shot on the wing, only 2 of which had defects. A total of 28 grouse taken while courting were normal. By regulating the times and methods of hunting it is possible not only to conserve the stocks of game, but also to keep them in good health.

Wiley, F. C., III, and P. B. Siegel. BEHAVIOR PATTERNS IN GAME BIRDS FROM SIX TO THIRTEEN WEEKS OF AGE. Va. J. Sci. 14(4): 179. 1963. [From Biol. Abstr. 45(19), 1964.] WR 119: 54
[VPI, Blacksburg, Va.] Abstract only.

Yurgenson, P. B. [THE ARTIFICIAL SCATTERING OF WILD BIRDS AS A METHOD OF PRODUCTION FOR HUNTING.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 257-259. 1962. [From Biol. Abstr. 45(17), 1964, from Referat. Zhur., Biol., 1963, no. 17I176. In Russian.] WR 119: 54

QUAIL

Roseberry, John L., and Willard D. Klimstra. A GUIDE TO AGE DETERMINATION OF BOBWHITE QUAIL EMBRYOS. Ill. Nat. Hist. Surv. Biol. Notes no. 55. 4 p., [3] figs. July 1965. WR 119: 54
Stages of development of bobwhite embryos are figured and described.

Fedyanina, T. P. [EXPERIENCE IN THE SEMI-VOLUNTARY RAISING OF PHEASANTS IN KIRGIZIYA AND THE PROSPECTS OF THEIR REACCLIMATIZATION.] In: The acclimatization of animals in the USSR.) Akad. Nauk Kirgizsk. SSR (Alma-Ata). p. 198-200. 1963. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I165. In Russian.] WR 119: 55

Hudson, George E., Sy Ying Chen Wang, and Ernest E. Provost. ONTOGENY OF THE SUPERNUMERARY SESAMOIDS IN THE LEG MUSCLES OF THE RING-NECKED PHEASANT. Auk 82(3): 427-437, 5 figs. July 1965. WR 119: 55
[Wash. State Univ., Pullman.] Studies reported in this paper indicate that development of the sesamoids cannot be used as a criterion for aging ring-necked pheasants (Phasianus colchicus).

Hunter, Brian F., and Merton N. Rosen. OCCURRENCE OF LEAD POISONING IN A WILD PHEASANT (PHASIANUS COLCHICUS). Calif. Fish & Game 51(3): 207. July 1965. WR 119: 55
[Calif. Dept. Fish & Game, Sacramento.]

Kurskova, T. N. [THE SEMIVOLUNTARY MAINTENANCE OF JUVENILE PHEASANTS.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 59-61. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I163. In Russian.] WR 119: 55

Linder, Raymond L., and C. Phillip Agee. REGULATION OF PHEASANT DENSITY THROUGH NEST ABANDONMENT IN SOUTH-CENTRAL NEBRASKA. Trans. 30th N. Am. Wildl. Conf. p. 411-422. 1965. WR 119: 55
[S. Dak. State Univ., Brookings.] A hypothesis is proposed that nest abandonment in the ring-necked pheasant may occur if an incubating hen has been subjected to the presence of chicks hatched by other hens and that this abandonment may regulate population density. Experiments were conducted to test the response of incubating hens to the activities of introduced chicks. Five hens were subjected to the sound of chicks and in each case the hen continued to incubate until the eggs hatched. In experiments with sight and sound, seven hens, serving as controls, completed incubation, while of the nine hens subjected to both the sight and sound of chicks, four abandoned their nests. Four nests were destroyed by mammals and one hen completed incubation. In the experiment involving full association with chicks, four hens, serving as controls, completed incubation. However, at the 11 nest sites involving full association with chicks, nine hens abandoned their nests and two nests were destroyed by mammals. It was also found that all cover types used for nesting were important for rearing of the young. It was concluded that an incubating hen could be induced through the presence of chicks hatched by other hens to change from care-of-the-egg to care-of-the-young phase. Since nesting and rearing occur in the same areas, the probability of association between hens and chicks of other hens would increase as the nesting season progresses and the number of broods increases. If nest failures result from these contacts a threshold might be reached where the number of chicks in a given area would be sufficient to preclude further successful nesting there.--Auth abstr.

Lustin, V. S. [RESTORATION OF THE PHEASANT IN THE AKCHINA HUNTING TRACT.] In: (Commercial game animals in Uzbekistan.) Akad. Nauk Uzbeksk. SSR (Tashkent). p. 76-81. 1964. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 3I226. Transl. of Russian abstr.] WR 119: 55

L'vov, I. A. [THE ACCLIMATIZATION OF PHEASANTS IN THE UKRAINE.] Ptitsevodstvo 10: 22-24. 1962. [From Biol. Abstr. 45(21), 1964, from Referat. Zhur., Biol., 1963, no. 17I160. Transl. of Russian abstr.] WR 119: 55

Hamerstrom, Frances, Daniel D. Berger, and F. N. Hamerstrom, Jr. THE EFFECT OF MAMMALS ON PRAIRIE CHICKENS ON BOOMING GROUNDS. J. Wildl. Mgmt. 29 (3): 536-542, 1 fig. July 1965. WR 119: 56

[Wis. Conserv. Dept., Plainfield.] Abstract: Mammalian predators were known to have killed only one bird during 4,745 blind-mornings of watching greater prairie chickens (Tympanuchus cupido pinnatus) on their booming grounds on two study areas in central Wisconsin through 21 springs (1939-63). A total of 179 incidents involving mammals was observed. Prairie chickens were disturbed most by people, and more by nonindigenous dogs and livestock than by native foxes and deer. Factors which seemed to contribute to alarm reactions were large size, speedy approach, closeness, and length of stay. The birds commonly evaded an approaching mammal simply by walking aside; when flushed, they generally flew only a short distance and never in the panic flight often elicited by raptors.

Höglund, Nils H. FRIGHT MOULTING IN TETRAONIDS. Viltrevy 2(8): 419-425, 1 fig., 1 pl. 1964 [1965]. In English with long Swedish abstr. WR 119: 56

Summary: Shedding of feathers due to sudden fright ("fright moulting") has been observed in Swedish tetraonid species. Thus, it occurred in capercaillie at catching by net and at attack by golden eagle and goshawk, in black grouse and hazel grouse at catching by net, and in willow grouse (incubating ♀) when frightened by dog. Probably the phenomenon is not unusual in tetraonids. Feathers found in varying numbers e.g. at nests of tetraonids or elsewhere are in many cases no proof that the bird in question has been killed by a predator.

Koivisto, Ilkka. BEHAVIOR OF THE BLACK GROUSE, LYRURUS TETRIX (L.), DURING THE SPRING DISPLAY. Finnish Game Res. 26. 60 p., 39 figs. 1965. WR 119: 56

Marcström, Vidar. STUDIES ON THE PHYSIOLOGICAL AND ECOLOGICAL BACKGROUND TO THE REPRODUCTION OF THE CAPERCAILLIE (TETRAO UROGALLUS LIN.) Viltrevy 2(1): [1] + p. 5-85, 24 figs. 1960. In English with long Swedish abstr. WR 119: 56

Ransom, A. Brian. OBSERVATIONS OF A RUFFED GROUSE DECLINE. Canadian Field-Nat. 79(2): 128-130. Apr.-June 1965. WR 119: 56

[Manitoba Wildl. Branch, 908 Norquay Bldg., Winnipeg.]

Roberts, Harvey A. ASPECTS OF THE LIFE HISTORY AND FOOD HABITS OF ROCK AND WILLOW PTARMIGAN. M.S. thesis, Univ. Alaska. 108 p. May 1963. WR 119: 56

An investigation of population fluctuations, life history, and food habits of rock and willow ptarmigan in interior Alaska was conducted from September, 1952, through July, 1953. Gonad measurements indicated that sexual activity for both rock and willow ptarmigan was at a peak or near-peak during mid-May. Average brood size for rock and willow ptarmigan was 6.3 and 6.3 chicks, respectively. Hunter bag checks during September, 1952, revealed an adult-juvenile ratio of 1:4.3 in fall rock ptarmigan population. This ratio was 1:13.7 for willow ptarmigan. Ossification of the skull proved to be the most accurate method for age determination, followed by a condition of the first primary. On a year-round basis, plant material made up 91% of the rock ptarmigan's diet. Vegetable matter constituted 99% of the total annual diet of the willow ptarmigan.--From abstr. Courtesy/ Frederick C. Dean.

Romanov, A. N. [A CURTAIN-TYPE TRAP FOR WILD GROUSE.] Trudy Oksk Gos. Zapovednika 4: 437-440. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 10I152. Transl. of Russian abstr.] WR 119: 56

A description is given of a fixed automatic trap for grouse. A layer of sand in which the grouse can wallow or artificial gravel is used as bait. The trap was tested in the Pechora Raion of the Komi ASSR in Sept., and Oct.; it caught mostly capercaillies at the rate of 1 bird per 250 trap-days. The birds remained alive for 4-5 days in the trap.

Romanov, A. N. [AN OUTLINE OF THE ECOLOGY OF THE HAZEL GROUSE IN THE KOMI ASSR.] Trudy Komi Fil. Akad. Nauk SSSR 12: 79-86. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1964, no. 11200. Transl. of Russian abstr.] WR 119: 57

Weeden, Robert B. BREEDING DENSITY, REPRODUCTIVE SUCCESS, AND MORTALITY OF ROCK PTARMIGAN AT EAGLE CREEK, CENTRAL ALASKA, FROM 1960 TO 1964. Trans. 30th N. Am. Wildl. Conf. p. 336-348. 1965. WR 119: 57

[Alaska Dept. Fish & Game, Fairbanks.] Initial breeding stocks of rock ptarmigan (Lagopus mutus) on a 15-square-mile study area rose from 88 cocks in 1960 to a peak of 170 in 1962, then dropped to 109 in 1964. Two years of good chick production were followed by three years of lower production. Clutch size decreased significantly from a mean of 8.2 eggs in 1960 to 6.5 and 6.6 eggs in 1963 and 1964, but predation by Mustela erminea accounted for most of the decline in production after 1961. Early survival of chicks did not vary greatly. Mortality from August to May was 40-46% for all ages in 1960-61; death rates rose in 1961-62 and 1962-63 to 64-67%. First-year birds comprised about two thirds of the breeding population in 1961, 1962, and 1963. In 1960 first-year males comprised 46% of all cocks, and in 1964 yearlings of both sexes were scarce.--Auth. abstr.

DOVES AND PIGEONS

Balda, Russell P. LOGGERHEAD SHRIKE KILLS MOURNING DOVE. Condor 67(4): 359. July-Aug. 1965. WR 119: 57

[Univ. Ill., Urbana.] A loggerhead shrike (Lanius ludovicianus) attacked and killed a mourning dove (Zenaidura macroura) which was feigning injury after being frightened from its nest by the author. The dove's neck was broken by the shrike.

Goforth, W. Reid, and Thomas S. Baskett. EFFECTS OF EXPERIMENTAL COLOR MARKING ON PAIRING OF CAPTIVE MOURNING DOVES. J. Wildl. Mgmt. 29(3): 543-553, 8 figs. July 1965. WR 119: 57

[Mo. Coop. Wildl. Res. Unit, Univ. Mo., Columbia.] Abstract: Yellow markers placed on the heads of penned female mourning doves (Zenaidura macroura) during the pairs' first incubation attempts of the season were sufficient to disrupt pair bonds. At this time pair bonds appeared to be much less firmly established than they were after each pair had nested successfully at least once. Firmly established pair bonds (following a successful nesting) were not broken by marking or handling the penned females that were incubating or brooding squabs. Removing the females and the eggs or squabs always broke pair bonds and caused the males' rates of perch cooing to increase several fold. Yellow headmarks on the females prevented the reestablishment of pair bonds when the females were returned to their mates after a few days' separation. Rates of perch cooing by the males remained high. Pair bonds were quickly reformed when the yellow headmarks were removed. Females returned to their mates without headmarks were accepted immediately. Green, white, or red headmarks or colored back-tags on the female did not prevent the reestablishment of pair bonds upon the return of the female to her mate. Yellow headmarks on the males produced no aberrant behavior. Results of these experiments indicate that investigators employing color marking should check closely for subtle behavioral aberrations among the marked birds.

McFarland, D. J. THE EFFECT OF HUNGER ON THIRST MOTIVATED BEHAVIOUR IN THE BARBARY DOVE. Animal Behaviour 13(2&3): 287-292, 3 figs. Apr.-July 1965. WR 119: 57

[Dept. Psychology, Durham, England.] Taken together with previous work on the effects of thirst on feeding behaviour in the Barbary dove, these results indicate that the reciprocal inhibition between the feeding and drinking systems is not symmetrical. Thus hunger inhibits a part of the drinking system common to the appetitive and consummatory mechanisms; the inhibition acting indirectly (probably by removing the stimulus to drink) so that the

hungry animal is in no way thirsty. In contrast thirst appears to exert a direct inhibition on eating (leaving appetitive aspects of feeding behaviour free to respond to the food deficit) so that the thirsty animal is also slightly hungry.--From summ.

McFarland, D. J. HUNGER, THIRST AND DISPLACEMENT PECKING IN THE BARBARY DOVE. Animal Behaviour 13(2&3): 293-300, 1 fig. Apr.-July 1965. WR 119: 58
[Dept. Psychology, Durham, England.] In general the results reported in this paper support the view that displacement activities occur by some sort of disinhibition. However, the finding that displacement pecking occurs in situations which are not strictly speaking conflict situations, cannot be accounted for by the disinhibition hypothesis as it stands at present.--From summ.

Murton, R. K., A. J. Isaacson, and N. J. Westwood. CAPTURING COLUMBIDS AT THE NEST WITH STUPEFYING BAITS. J. Wildl. Mgmt. 29(3): 647-649. July 1965. WR 119: 58
[Ministry Agr., Warplesdon, Guildford, Surrey, England.] Abstract: Wheat baits coated with 3 percent by weight of alpha-chloralose and placed near occupied and empty nests were eaten by sitting wood-pigeons (Columba palumbus). The birds became stupefied and could be collected for examination and marking. When released in the breeding area after recovery, they returned to their nests. This is an efficient technique for capturing such birds, and there is little risk of the desertion of the nest which occurs when nest traps are used.

Tenovuo, Rauno. ZUM PROBLEM DER HAUSTAUBE, COLUMBA LIVIA GM., UND UMSIEDLUNG DER POPULATION AUS DEN STADTEN IN LANDGEGENDEN. [THE PROBLEM OF THE ROCK DOVE COLUMBA LIVIA AND ITS INCREASE.] Ornis Fennica 40(4): 125-131. 1963. [From Biol. Abstr. 45(24), 1964. In German.] WR 119: 58
[Zool. Inst. der Univ. Turku, Turku, Finland.] The rock dove has recently been noticed because it harbors ornithosis virus. In Finland it has recently increased and spread, breeding under stone bridges or on rock ledges.

WATERFOWL

Anderson, Edward Wilton. WATERFOWL PRODUCTION ON THE ERIE MARSH, MONROE COUNTY, MICHIGAN. M.S. thesis, Univ. Mich. 1964. [Osborn and others, Forest Sci. 11(2), 1965.] WR 119: 58

Ardamatskaya, T. B. [THE ECOLOGY OF NESTING ANATINAE ON THE NORTHWESTERN ISLANDS OF THE BLACK SEA.] Voprosy Ekologii. Vysshaya Shkola (Moscow) 6: 13-14. 1962. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1962, no. 24I258. Transl. of Russian abstr.] WR 119: 58

Chabreck, Robert H. SARCOSPORIDIOSIS IN DUCKS IN LOUISIANA. Trans. 30th N. Am. Wildl. Conf. p. 174-184. 1965. WR 119: 58
[La. Wild Life & Fisheries Comm., Grand Chenier.] A report of the 1,553 ducks of 9 spp. examined for Sarcocystis rileyi in La. during 1960-1964. Of 961 adult ducks, 35.7% were infested and of 552 immatures, 0.4% were infested. All 9 spp. checked were parasitised and no difference was found between infestation rates of adult males and adult females. Also, no great difference was found in the annual occurrence of Sarcosporidia or between two separate areas in the state. All levels of infestations from light to heavy occurred at relatively equal rates on individual species.--From auth. abstr.

Copelin, Farrell F. WATERFOWL INVENTORY ON SMALL FLOOD PREVENTION RESERVOIRS IN WESTERN OKLAHOMA. Proc. Okla. Acad. Sci. 42: 260-263. 1962. [From Biol. Abstr. 45(24), 1964.] WR 119: 58
[Okla. Wildl. Conserv. Dept., Oklahoma City.]

Corzo, Rodolfo Hernandez. WATERFOWL CONSERVATION IN MEXICO. Trans. 30th N. Am. Wildl. Conf. p. 260-265. 1965. WR 119: 59
[Dirección General de la Fauna Silvestre, Mexico, D. F. Mexico.] A review of the history of conservation since 1931 when the first really important game regulations were passed to the present [1964-65] when helicopters were used regularly for conservation and law enforcement. Special interest is currently being centered on the investigation and development of Lakes Zumpango and Atenco as the first wintering refuges in Mexico.

Cowardin, Lewis M., and James E. Ashe. AN AUTOMATIC CAMERA DEVICE FOR MEASURING WATERFOWL USE. J. Wildl. Mgmt. 29(3): 636-640, 3 figs. July 1965. WR 119: 59
[N. Y. Coop. Wildl. Res. Unit, Cornell Univ., Ithaca.] Abstract: A Yashica Sequelle camera was modified and equipped with a timing device so that it would take pictures automatically at 15-minute intervals. Several of these cameras were used to photograph randomly selected quadrats located in different marsh habitats. The number of birds photographed in the different areas was used as an index of waterfowl use.

Crissey, Walter F. WATERFOWL SPECIES MANAGEMENT: PROBLEMS AND PROGRESS. Trans. 30th N. Am. Wildl. Conf. p. 229-246. 1965. WR 119: 59
[Migratory Bird Populations Sta., Laurel, Md.] Efficient use of the waterfowl resource for recreational purposes demands that management by individual species be employed to the greatest extent feasible. Shooting regulations are the major tools for managing by species and they have been used for many years. Studies have demonstrated that restrictive shooting regulations increase survival of several of the more heavily shot species. Less is known about the effect of special liberalizations in regulations on lightly shot species, such as blue-winged teal and lesser scaup. Experimentation is required to provide necessary information. Bonus scaup bag limits and the special September season on teal in the fall of 1965 in the Central and Mississippi Flyways are examples. Species management problems discussed include the build-up in mallard wintering populations in the Columbia Basin in Washington, Oregon, and Idaho and the possibility that mallard production in the important pothole breeding range in the Dakotas and western Minnesota may have been materially decreased by overshooting the breeding population indigenous to the area. A problem in managing by species is lack of ability of hunters to identify many species of waterfowl on the wing. Ability to identify is necessary before many species management practices become feasible. Looking to the future when waterfowl populations may be smaller and the need for species management is greater, it is conceivable that hunters may derive as much recreation from learning to identify species as they do from the shooting which follows.--Auth. abstr.

Gates, John M. DUCK NESTING AND PRODUCTION ON WISCONSIN FARMLANDS. J. Wildl. Mgmt. 29(3): 515-523, 1 fig. July 1965. WR 119: 59
[Wis. Conserv. Dept., Waupon.] Abstract: Duck-nesting studies were made from 1959 through 1963 on a 7-square-mile study area in east-central Wisconsin. Breeding populations of mallards (Anas platyrhynchos) and blue-winged teals (A. discors) combined averaged 7.6 pairs per square mile per year. Wetlands and hayfields were the primary cover types used for nesting. Total hatching success was 32 percent for the 5-year period. Production was estimated to average about four broods per square mile per year. Low brood survival, associated with a deficiency of adequate brood habitat, appeared to be an important limitation to duck production in 4 of the 5 years of the study.

Gottschalk, John S. WATERFOWL HABITAT PRESERVATION. Trans. 30th N. Am. Wildl. Conf. p. 265-273. 1965. WR 119: 60

[Bur. Sport Fisheries & Wildl., Washington, D. C.] The importance of wildlife habitat preservation in waterfowl management is emphasized in a summary of the Federal Accelerated Wetlands Acquisition Program. Program goals were established at 12.5 million acres to be in public ownership. Of this amount, about 5.5 million acres are already in Federal and State ownership; of the remaining 7 million acres, 4.5 million were to be acquired with Federal funds and 2.5 million through State efforts. As of December 31, 1964, 385,528 acres had been acquired at a cost of $24,156,581. Obstacles to achievement of program goals and measures taken to overcome them are described. Suggestions are made for improvement in the rate of acquisition, along with proposals for actions other than land acquisition which will be required for preservation of essential waterfowl habitat.--Auth. abstr.

Harris, Stanley W., and Peter H. K. Shepherd. AGE DETERMINATION AND NOTES ON THE BREEDING AGE OF BLACK BRANT. J. Wildl. Mgmt. 29(3): 643-645, 2 figs. July 1965. WR 119: 60

[Humboldt State Coll., Arcata, Calif.] Abstract: Presence of one or a few white-tipped secondary coverts on wings of flightless black brant (Branta bernicla orientalis) in summer identified birds as yearlings. Older brant had black secondary coverts, and goslings had a complete set of new, white-tipped coverts. Of 19 known 2-year-old female brant trapped, 6 had brood patches and apparently had made attempts to nest. No yearling of either sex showed any evidence of having nested.

Hartung, Rolf. SOME EFFECTS OF OILS ON WATERFOWL. Ph.D. thesis, Univ. Mich. 200 p. 1964. [From Dissertation Abstr. 25(12, pt. 1), 1965.] WR 119: 60

External oiling of waterfowl resulted in a loss of buoyancy and loss of insulation, but did not necessarily destroy the power of flight immediately. The loss of insulation due to feather matting was studied by measuring metabolic rates. It was found that at the same ambient temperature, heavily oiled birds must spend almost three times the metabolic energy of normal birds to maintain their normal body temperature. The toxic effects of oils were studied by autopsies of ducks which had been killed in the wild, and by experimental feeding of oils to ducks. Lipid pneumonia, irritation of gastro-intestinal tract, anemia, reduction of zymogen granules in the pancreas, fatty infiltration and degeneration of the liver, toxic nephosis, increases of non-protein nitrogen levels in the blood, adrenal cortical hyperplasia, and inhibition of cholinesterase activity were among the effects reported. Approximate mean lethal doses were determined for several oils under varying environmental conditions. Oils were also found to have detrimental effects on reproduction. Ingestion of oils temporarily inhibited egg laying. Eggs which were incubated by oiled ducks did not hatch. Experiments in incubators indicated that 12.5 mg of oil per egg was nearly always sufficient to inhibit hatching.

Hochbaum, H. Albert, and Eugene F. Bossenmaier. WATERFOWL RESEARCH--ACCOMPLISHMENTS, NEEDS, OBJECTIVES. Trans. 30th N. Am. Wildl. Conf. p. 222-229. 1965. WR 119: 60

[Delta Waterfowl Res. Sta., Delta, Manitoba, Canada.]

Kear, Janet. THE INTERNAL FOOD RESERVES OF HATCHING MALLARD DUCKLINGS. J. Wildl. Mgmt. 29(3): 523-528, 2 figs. July 1965. WR 119: 60

[Wildfowl Trust, Slimbridge, Gloucestershire, England.] Abstract: This paper deals with late embryonic and postembryonic weight changes in the yolk sac and liver of mallard ducklings (Anas platyrhynchos) from Slimbridge, England. The amount of yolk which remained after hatching was thought to depend in part on heredity and in part of the speed of the hatching process. Yolk was mostly used up during hatching and in the first day of life and was, therefore, an unimportant food store after ducklings left the nest. During

the second day the yolk sac decreased at much the same rate in fed and unfed birds, indicating that its shrinkage does not depend on the bird's nutritional state. Birds without food for the first 48 hours were in good condition and apparently existed mainly on their body fat reserves. Liver weight increased as yolk decreased before and immediately after hatching, although the birds did not feed. At 2 weeks, this organ was relatively enormous, and some proportional decrease must occur as the mallard matures.

Malone, Charles R. DISPERSAL OF PLANKTON: RATE OF FOOD PASSAGE IN MALLARD DUCKS. J. Wildl. Mgmt. 29(3): 529-533. July 1965. WR 119: 61
[Texas Tech. Coll., Lubbock.] Abstract: To determine the possibilities of dispersal of plankton via the intestinal tract of birds, the rate of passage of viable disseminules, and the effect that maximum retention within the tract has upon the disseminules, brine shrimp (Artemia salina) eggs were mixed with various foods and fed to mallard ducks (Anas platyrhynchos). The rate of passage of viable brine shrimp eggs was found to be largely dependent upon the kind of food with which the eggs were ingested. The most rapid passage was observed with nonfibrous aquatic vegetation and invertebrates, the most lengthy with dried grain. A small number of eggs often entered the caeca. These were retained within the intestinal tract two or three times longer than eggs which bypassed the caeca. The only observable effect of avian digestion upon brine shrimp eggs was physical damage. A direct relationship existed between the rate of passage of the eggs and the amount of fragmentation they suffered. Experiments with canaries, chickens, and pigeons gave comparable results, but it appeared that granivorous birds may have more pronounced effects upon ingested plankton disseminules than herbivorous or omnivorous birds.

McKinney, F. THE DISPLAYS OF THE AMERICAN GREEN-WINGED TEAL. Wilson Bull. 77(2): 112-131, 8 figs. June 1965. WR 119: 61
Summary: The displays of the American green-winged teal are briefly described. Most of the displays are performed during social courtship but a few occur when the members of a recently formed pair are alone. Most male displays are given with the body broadside to the female, but one involves facing her, another entails facing away. Two displays are associated with the hostility between males. Displays recorded for the European race occur also in the American race and no differences in behavior of the two forms have been detected.

McKinney, F. THE SPRING BEHAVIOR OF WILD STELLER EIDERS. Condor 67(4): 273-290, 5 figs. July-Aug. 1965. WR 119: 61
[Minn. Museum Nat. Hist., Minneapolis.] On behavior in connection with courtship and copulation of Polysticta stelleri.

Mikhel'son, G. A. [SEASONAL DISTRIBUTION AND MIGRATION OF LATVIAN DUCKS (ANATIDAE) ACCORDING TO BANDING DATA.] Trudy Inst. Biol. Akad. Nauk Latviisk. SSR 22: 23-56. 1962. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1963, no. 15I204. Transl. of Russian abstr. Original with English summ.] WR 119: 61

Mikhel'son, Kh. A., G. T. Lein'sh, and Ya. A. Vikane. [DESTRUCTION OF DUCK NESTS ON THE SEASIDE LAKES OF ENGURE AND KANIERIS IN THE LATVIAN SSR.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 103-132. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 7I197. In Russian.] WR 119: 61

Miller, Harvey, and Alex Daubin. REGROUPING OF FAMILY MEMBERS OF THE WHITE-FRONTED GOOSE (ANSER ALBIFRONS) AFTER INDIVIDUAL RELEASE. Bird-Banding 36(3): 184-191. July 1965. WR 119: 61
[US P&WS, Jamestown, N. Dak.] Members of families of white-fronted geese (Anser albifrons) returned to the original group after being trapped, mixed with other families, and separately released.

Milne, Robert C. CRAB PREDATION ON A DUCKLING. J. Wildl. Mgmt. 29(3): 645. July 1965. WR 119: 62

[Lassen Volcanic Natl. Park, Mineral, Calif.] Abstract: The predation of a blue crab (Callinectes sp.) upon a gadwall duckling (Chaulelasums streperus) was observed in the Pea Island National Wildlife Refuge on the Outer Banks of North Carolina. This is believed to be the first record of invertebrate predation on a duckling.

Munro, David A. WATERFOWL MANAGEMENT IN CANADA. Trans. 30th N. Am. Wildl. Conf. p. 212-222. 1965. WR 119: 62

[Canadian Wildl. Serv., Ottawa.] A review of developments in waterfowl management in Canada during the period 1955-65, giving information on a pilot program of waterfowl habitat maintenance by easement, on control of duck damage to cereals, the National Land Inventory and several research programs. A proposal for a major waterfowl habitat maintenance program is outlined.--Auth. abstr.

Olson, David P. DIFFERENTIAL VULNERABILITY OF MALE AND FEMALE CANVASBACKS TO HUNTING. Trans. 30th N. Am. Wildl. Conf. p. 121-135, 3 figs. 1965. WR 119: 62

[Univ. N. H., Durham.] The reaction of canvasbacks to decoys and their behavior over shooting passes were studied during three hunting seasons in Manitoba. Preliminary observations in 1959 and 1960 indicated that hunters killed proportionately more females and juveniles and fewer adult males than existed in the wild populations. During Sept. and Oct. 1961, canvasbacks were observed in 1,761 responses to decoys and 2,219 crossings over passes. The flock sizes, the number of "white" adult males and "brown" adult females or juveniles, the distance from blinds, and the tendency to swing over decoys or fly low across passes were recorded. At the same time the composition and size of canvasback populations in the study areas were being closely estimated by ground and aerial surveys. The adult females and juveniles are markedly more vulnerable to shooting both over decoys and on passes than are the adult males. Not only do they decoy more readily and fly across passes lower, but they are more active and, therefore, come into contact with hunters more often than do the adult males. Manipulation of decoy numbers and color (sex) influenced the responses of the two groups of canvasbacks to some extent. The implications of these data as regards the unbalanced sex ratios in this species and the possibilities of directing hunting pressure against males are discussed. --Auth. abstr.

Priklonskii, S. G. [PROBLEMS ON THE SPRING FLIGHT OF ANSERINES OVER CENTRAL REGIONS OF THE EUROPEAN PART OF RSFSR.] In: (Materials of the 3rd All Union Ornithological Conference, 1962.) L'vovsk. Univ. (L'vov) 2: 149-150. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 11I183. Transl. of Russian abstr.] WR 119: 62

Schneider, Karl Burton. GROWTH AND PLUMAGE DEVELOPMENT OF DUCKLINGS IN INTERIOR ALASKA. M.S. thesis, Univ. Alaska. 67 p. May 1965. WR 119: 62

The rates of growth and plumage development of mallard, canvasback, lesser scaup, and bufflehead ducklings were determined at Tetlin, Alaska, from daily field observations of known-age broods and weekly measurements of weight and length of the culmen, the tarsus, the 9th primary, the 6th secondary, the longest tertial, the middle rectrix, and the longest scapular. The rates of increase of weight, culmen length, and tarsus length were similar to those at lower latitudes. The rate of growth of individual feathers varies directly with the length of daylight. Latitudinal differences in daylight are such that of the individuals studied, mallards feathered faster, canvasbacks slightly faster, and lesser scaups slower in the North than at lower latitudes. Early and late hatching broods at the same latitude also show different rates of feathering.--From abstr. Courtesy/ Frederick C. Dean.

Shannon, Walter T. PRIVATE CLUBS AND THE WATERFOWL RESOURCE. Trans. 30th N. Am. Wildl. Conf. p. 255-259. 1965. WR 119: 63
[Calif. Dept. Fish & Game, Sacramento.] At one time there were about 3.5 million acres of wetlands in California that could be considered as good waterfowl habitat. These wetlands have now dwindled to about one-half million acres. Of this remaining habitat about 350,000 acres are in privately owned duck clubs and the remainder are in the state and federal waterfowl areas. Because private duck club lands make up such a large portion of the wintering grounds, their importance to the waterfowl resource is immediately apparent. In fact, their accomplishments parallel those of the state and federal waterfowl areas, namely, of preserving the waterfowl resource, controlling crop depredations on agricultural crops and providing hunting. There are ways that must be explored to perpetuate these privately-owned wetlands. These include (1) acquisition by state or federal agencies, (2) acquisition with lease back arrangements to the original owner, (3) easement to insure that wetlands will remain in present land use, (4) zoning present wetlands, (5) subsidies that could include free water and seduce taxes. While economic incentives are necessary it must be recognized that duck clubs are maintained primarily for duck hunting. Therefore, it is imperative that they be offered reasonable hunting seasons and bag limits. Without these incentives, clubs lose their value, they quit operating and their lands are converted to other land uses.--Auth. abstr.

Sherwood, Glen A. RECENT MODIFICATIONS IN BANDING EQUIPMENT FOR CANADA GEESE. J. Wildl. Mgmt. 29(3): 640-643, 3 figs. July 1965. WR 119: 63
[Seney Natl. Wildl. Refuge, Seney, Mich.] Abstract: Specialized banding equipment for Canada geese (Branta canadensis) was constructed and used at the Seney National Wildlife Refuge. The equipment included holding cages, a revolving banding table with band-dispensing turret and holding funnels, and a weighing tripod. Use of the equipment significantly reduced handling and injury to the geese.

Siegfried, W. R. PARASITIC EGG LAYING IN SOUTH AFRICAN ANATIDAE. Ostrich 35(1): 61-62. 1964. [From Biol. Abstr. 45(19), 1964.] WR 119: 63
[Heugh Rd. Walmer, Port Elizabeth, Africa.]

Smart, Glen. DEVELOPMENT AND MATURATION OF PRIMARY FEATHERS OF REDHEAD DUCKLINGS. J. Wildl. Mgmt. 29(3): 533-536, 3 figs. July 1965. WR 119: 63
[Migratory Bird Populations Sta., Laurel, Md.] Abstract: A comparison of the maturation rates of the primaries of redheads (Aythya americana) hatched very early with those hatched very late was made in the 1961 season. Primaries of the early-hatched birds emerged when the birds were 36-38 days old, those of the late-hatched birds when they were 7-10 days younger. This difference was also found in the age at first flight and the age at eventual maturation of all primaries. Primaries of late-hatched birds were significantly shorter in length when mature than were the primaries of early-hatched birds.

Valyus, M. [SWAN LAKE.] Okhota & Okhotnich'e Khoz. 5: 24-25. 1963. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 23I122. Transl. of Russian abstr.] WR 119: 63
Reacclimatization of mute swan in Lithuania.

Williams, D. A. WATERFOWL HABITAT UNDER U. S. AGRICULTURAL PROGRAMS. Trans. 30th N. Am. Wildl. Conf. p. 246-254. 1965. WR 119: 63
[SCS, Washington, D. C.] Agriculture contributes in a major way to waterfowl habitat because (1) most waterfowl habitat in the U. S. is on private land; (2) waterfowl depend on farm crops and effects of farming for food and winter habitat; (3) soil and water conservation practices on agricultural land improve waterfowl habitat; and (4) agriculture and its conservation practices distribute the waterfowl population so it is enjoyed by more people. Major U. S. Department of Agriculture programs that benefit waterfowl are cropland conversion, assistance to soil conservation districts, small watershed projects,

Agricultural Conservation Program (ACP), conservation loans, and Resource Conservation and Development projects. Wildlife agencies, and all others dealing with land use, are urged to cooperate in planning resource conservation and development programs with due consideration of wildlife.--Ben Osborn.

Williams, John Edwin. ENERGY REQUIREMENTS OF THE CANADA GOOSE IN RELATION TO DISTRIBUTION AND MIGRATION. Ph.D. thesis, Univ. Ill. 112 p. 1965. [From long abstr. in Dissertation Abstr. 26(1), 1965.] WR 119: 64

The present study determined that by performing northward and southward migrations, the population of Canada geese maintains about the same level of existence requirements throughout the year. Although the population is apparently physiologically capable of wintering on the breeding grounds, the absence of winter food makes southward migration necessary. Since northward migration in spring does not gain a more favorable energy balance for the geese, factors other than energy economy must therefore be responsible for this species' northward migration and distribution.

CRANES, RAILS, SHOREBIRDS

Aguirre, Alvaro. ESTUDO SÔBRE A BIOLOGIA E CONSUMO DA JACANA PORPHYRULA MARTINICA (L.) NO ESTADO DO MARANHÃO. [STUDY ON THE BIOLOGY AND CONSUMPTION OF PORPHYRULA MARTINICA (L.) IN THE STATE OF MARANHÃO, BRAZIL.] Arq. Mus. Nac. (Rio de Janeiro) 52: 9-20, illus. 1962. [From Biol. Abstr. 45(24), 1964. In Portuguese with English summ.] WR 119: 64

[Div. Caca e Pesca, Rio de Janeiro, Brazil.]

Buller, Raymond J., and Erwin L. Boeker. COORDINATED SANDHILL CRANE STUDY IN THE CENTRAL FLYWAY. Trans. 30th N. Am. Wildl. Conf. p. 100-113, 1 fig. 1965. WR 119: 64

[Bur. Sport Fisheries & Wildl., Albuquerque, N. Mex.] The vanguard of the 1962-64 fall migrations of sandhill cranes in the Central Flyway reached congregation areas in Saskatchewan and N. Dak. about mid-Aug.; Wyo. about Sept. 10; Mont. and S. Dak. in late Sept. and early Oct.; Colo., Nebr., and Kans. about mid-Oct.; and Okla., late Oct. Peak populations at principal waystations ranged from 10,000 to 50,000 birds. Racial determinations based on 3,492 footprint (midtoe-posterior edge of the ball of the foot to, but not including, the claw) measurements indicated that 90-100% of the birds utilizing waystations in N. Dak., S. Dak., and Colo. were of the lesser variety. Taxonomic studies of 75 birds collected in N. Dak. and S. Dak. also confirmed the fact that the fall migration includes small numbers of greater and intermediate snndhill cranes. The fall migration of the whooping crane is sometimes concurrent in time and place with the sandhills, and during the past 6 years whooping cranes have been observed with sandhills in Saskatchewan, N. Dak., S. Dak., and Kans. Cranes fed on standing and harvested grain crops and in winter wheatfields throughout the flyway, but depredation control measures are used infrequently.--R. J. Buller.

Cunningham, Richard L. PREDATION ON BIRDS BY THE CATTLE EGRET. Auk 82(3): 502-503. July 1965. WR 119: 64

[Everglades Natl. Park, Flamingo, Fla.] Cattle egrets (Bubulcus ibis) were observed eating a blackpoll warbler (Dendroica striata) and a myrtle warbler (Dendroica coronata).

Frohling, Robert C. AMERICAN OYSTERCATCHER AND BLACK SKIMMER NESTING ON SALT MARSH. Wilson Bull. 77(2): 193-194. June 1965. WR 119: 64

[Belle Mead, N. J.] Nests of oystercatchers (Haematopus palliatus) and black skimmers (Rynchops nigra) were found on drift material at a distance from the usual sandy nesting place.

Heroňová, Hana, and Milan Klíma. COMPARISON OF POSTNATAL DEVELOPMENT IN THE BLACK-HEADED GULL (LARUS RIDIBUNDUS) UNDER NATURAL CONDITIONS AND IN CAPTIVITY. Vest. Ceskoslov. Spolecnosti Zool. 27(1): 74-84, illus. 1963. [From Biol. Abstr. 45(24), 1964. In English with Czech summ.] WR 119: 65
[Charles Univ., Prague, Czechoslovakia.]

Hitchcock, W. B. GEOGRAPHY AND SEASONAL MOVEMENTS OF THE COMMON TERN IN AUSTRALIA. Emu 64(3): 157-171, 1 fig. + 2 pls. May 1965. WR 119: 65
"Sterna hirundo."

Jovetić, Radivoje. [THE LIFE OF THE WHITE STORK, CICONIA CICONIA , IN MACEDONIA.] Larus 15: 28-99, illus. 1961 [1963]. [From Biol. Abstr. 45(19), 1964. In Serbo-Croatian with German summ.] WR 119: 65

Kartashev, N. N. [A BRIEF SURVEY OF THE METHODS OF COUNTING THE POPULATION OF GULLS AND SCAVENGER BIRDS.] In: (Organization and methods of counting birds and harmful rodents.) Akad. Nauk SSSR (Moscow). p. 100-110. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1964, no. 8I115. Transl. of Russian abstr.] WR 119: 65
A review of the most widely used methods of counting gulls and scavengers: absolute and relative counts of nests and nesting birds, mapping changes in the area of the colonies by years, counts along routes which make possible determination of the ratios of the spp. and of their relative numbers, the use of data from hunting, counts during times other than nesting, etc. There is a bibliography with 23 references.

Long, R. GULLS PREYING ON ADULT STORM PETRELS. British Birds 58(6): 219-220. June 1965. WR 119: 65
"Larus marinus."

Malone, Charles R. KILLDEER (CHARADRIUS VOCIFERUS LINNAEUS) AS A MEANS OF DISPERSAL FOR AQUATIC GASTROPODS. Ecology 46(4): 551-552. Early Summer 1965. WR 119: 65
[Texas Technol. Coll., Lubbock.] Abstract: Two species of fresh-water snails were found capable of attaching themselves to the feet of killdeer. Once attached and removed from water, the snails remained attached and retained their viability for sufficient lengths of time to effect passive overland dispersal.

Minoranskii, V. A. [NESTING OF THE HERRING GULL (LARUS ARGENTATUS) IN LAKE MANYCH-GUDILO.] Nauchn. Doklady Vyssheishkoly Biol. Nauki 3: 51-53. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 8I167. Transl. of Russian abstr.] WR 119: 65

Mueller, Helmut C., and Daniel D. Berger. RING-BILLED GULLS FEED ON FLYING ANTS. Auk 82(3): 504. July 1965. WR 119: 65
[Univ. Wis., Madison.] Ring-billed gulls (Larus delawarensis) were observed catching swarming ants (Lasius alienus americanus).

Panov, E. N. [FEEDING HABITS OF SOME WOODCOCK SPECIES.] Zool. Zhur. 43(1): 89-97, illus. 1964. [From Biol. Abstr. 45(22), 1964. In Russian with English summ.] WR 119: 65

Peterson, Clell T. AN UNUSUAL COLONY OF LITTLE BLUE HERONS. Wilson Bull. 77(2): 192-193. June 1965. WR 119: 65
[Murray State Coll., Murray, Ky.] The heronry is located in a pine grove, 200 by 300 yards in size, in a "fairly populous neighborhood." There have been more than 1000 breeding pairs in each of the past three years, and about 80% of the breeding pairs are little blue herons (Florida caerulea). Common egrets (Casmerodius albus) and black-crowned night herons (Nycticorax nycticorax) make up 20% of the colony. In the summer of 1963 some snowy egrets (Leucophoyx thula) and cattle egrets (Bulbulcus ibis) also nested in the pine grove.

Tomkins, Ivan R. THE WILLETS OF GEORGIA AND SOUTH CAROLINA. Wilson Bull. 77(2): 151-167, 2 figs. June 1965. WR 119: 66
[1231 East 50th St., Savannah, Ga.] Migration, habitat, voice, prenesting behavior, territoriality, nesting site, egg laying, incubation, young, population, nesting success, and food of the willet (Catoptrophorus semipalmatus) are discussed.

Viksne, Ya. A. [MIGRATION AND SEASONAL DISTRIBUTION OF GULLS IN LATVIA ACCORDING TO BANDING DATA.] Trudy Inst. Biol. Akad. Nauk Latviisk. SSR 22: 77-145, maps. 1962. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1963, no. 15I202. Transl. of Russian abstr.] WR 119: 66

Vinokurov, A. A. [AN AEROVISUAL ABSOLUTE COUNT OF WADING BIRDS IN THE LOWER REACHES OF THE KUBAN RIVER DELTA.] In: (Organization and methods of counting birds and harmful rodents.) Akad. Nauk SSSR (Moscow). p. 111-116. 1963. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1964, no. 8I114. Transl. of Russian abstr.] WR 119: 66

Walkinshaw, Lawrence H. ATTENTIVENESS OF CRANES AT THEIR NESTS. Auk 82 (3): 465-476. July 1965. WR 119: 66
[1703 Wolverine Tower, Battle Creek, Mich.] A report of observations on the whooping crane (Grus americana), sandhill crane (G. canadensis), sarus crane (G. antigone), white-naped crane (G. vipio), crowned crane (Balearica pavonina), wattled crane (Bugeranus carunculatus), Stanley crane (Anthropoides paradisea), and European crane (Grus grus).

Wetherbee, David Kenneth, and Brooke Meanley. NATAL PLUMAGE CHARACTERS IN RAILS. Auk 82(3): 500-501, 1 fig. July 1965. WR 119: 66
[Mass. Coop. Wildl. Res. Unit, Amherst.]

HAWKS AND OWLS

Banks, Richard C. SOME INFORMATION FROM BARN OWL PELLETS. Auk 82(3): 506. July 1965. WR 119: 66
[Nat. History Museum, San Diego, Calif.] Reports some bird and mammal distributional records obtained from examination of barn owl (Tyto alba) pellets from Islas Los Coronados, Baja California.

Khusainov, A. [THE ECOLOGY OF MONTAGU'S HARRIER.] Trudy Inst. Zool. Akad. Nauk Kazakhsk. SSR 20: 202-210. 1963. [From Biol. Abstr. 45(22), 1964, from Referat. Zhur., Biol., 1964, no. 5I215. Transl. of Russian abstr.] WR 119: 66

Loftin, Horace, and E. L. Tyson. STYLIZED BEHAVIOR IN THE TURKEY VULTURE'S COURTSHIP DANCE. Wilson Bull. 77(2): 193. June 1965. WR 119: 66
[Fla. State Univ. Canal Zone Program, Ft. Clayton, Canal Zone.] "Examination of the vultures' well-marked tracks on the sand disclosed two discrete, contiguous circles which formed a figure eight. One of the circles was about 6 feet in diameter, the other about 8 feet in diameter. They were well defined, with marks of trailing wings at the periphery. Each trail was approximately 15 inches wide."

Olivares, A. ¿SE ESTÁ EXTINGUIENDO EL CÓNDOR EN COLOMBIA? [IS THE CONDOR (VULTUR GRYPHUS) BEING EXTINGUISHED IN COLOMBIA? A MONOGRAPHY ON THE CONDOR.] Rev. Acad. Colombiana Cienc. Exactas Fis. & Nat. 12(45): 21-28, illus. 1963. [From Biol. Abstr. 45(19), 1964. In Spanish.] WR 119: 66
[Inst. Cienc. Nat., Univ. Nac. Colombia, Bogota, Colombia.]

Ruprecht, A. ANALIZA SKLADU POKARMU PLOMYKOWKI TYTO ALBA GUTTATA (C.L.BR.) Z ALEKSANDROWA KUJ., CIECHOCINKA I RACIAZKA W LATACH 1960-61. [THE ANALYSIS OF THE FOOD OF THE BARN OWL TYTO ALBA GUTTATA FROM ALEKSANDROW KUJ., CIECHOCINEK AND RACIAZEK DURING THE YEARS 1960-1961.] Zeszyty Naukowe Uniw. Mikołaja Kopernika W Toruniu Biol. 7: 45-66. 1964. [From Biol. Abstr. 45(24), 1964. In Polish with German summ.] WR 119: 67
[Univ. Torun, Torun, Poland.]

Stensrude, Curt. OBSERVATIONS ON A PAIR OF GRAY HAWKS IN SOUTHERN ARIZONA. Condor 67(4): 319-321. July-Aug. 1965. WR 119: 67
[Carlsbad Caverns Natl. Park, Carlsbad, N. Mex.] Deals with courtship, copulation, vocalizations, territoriality, and other behavior of the gray hawk (Buteo nitidus).

Steyn, P. OBSERVATIONS ON THE BROWN SNAKE-EAGLE CIRCAETUS CINEREUS. Ostrich 35(1): 22-31. 1964. [From Biol. Abstr. 45(20), 1964.] WR 119: 67
[Falcon Coll., Essexvale, S. Rhodesia.] A brown snake-eagle's nest was kept under observation in the Essexvale district, Southern Rhodesia, for a period of 6 months. Observations were made on: the hunting method; field identification; voice; the nest, egg, hatching and parental behavior during the incubation period; activity at the nest during the fledging period; and, week by week development. Certain divergence from the growth of other eagles is noted. The prey was entirely reptilian.

BLACKBIRDS, STARLINGS, CROWS

Baird, James, and Charlotte E. Smith. COMMON GRACKLE ATTACKS DICKCISSEL. Wilson Bull. 77(2): 195. June 1965. WR 119: 67
[Mass. Audubon Soc., Lincoln.] The adult dickcissel (Spiza americana) appeared to be in poor health when attacked by the grackle (Quiscalus quiscula). The grackle's attack was intercepted, but later the dickcissel was found dead.

Bergmanis, Yu. [MIGRATIONS AND THE SEASONAL DISTRIBUTION OF CORVIDAE IN LATVIAN SSR ACCORDING TO RINGING DATA.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 8-10. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 7I171. In Russian.] WR 119: 67

Brenner, Frederic James, III. THE RELATION OF RAINFALL TO REPRODUCTION IN RED-WINGED BLACKBIRD POPULATIONS. Ph.D. thesis, Pa. State Univ. 58 p. 1964. [From long abstr. in Dissertation Abstr. 26(2), 1965.] WR 119: 67
The relationship between rainfall and reproduction in birds is discussed. In contrast to tropical and xerophilous species, rainfall does not appear to be a stimulus for the start of nesting activity of birds in the temperate deciduous forest biome. However, rainfall and its effect on the type of vegetation and insect biomass may be factors in regulating the size of the population with temperature being the final stimulus controlling the start of nesting.

Danilyuk, I. I. [THE FIGHTS AND WINTERINGS OF STARLINGS IN THE BELOVEZHSKAYA DENSE FOREST.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 88-90. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 7I170. In Russian.] WR 119: 67

Graber, Richard R., Steven L. Wunderle, and Willis N. Bruce. EFFECTS OF A LOW-LEVEL DIELDRIN APPLICATION ON A RED-WINGED BLACKBIRD POPULATION. Wilson Bull. 77(2): 168-174. June 1965. WR 119: 67
[Ill. Nat. Hist. Surv., Urbana.] Observations were made on nesting success of red-winged blackbirds (Agelaius phoeniceus) in a meadow adjacent to a wheat field sprayed with dieldrin at a rate of one-fourth pound active insecticide per acre.

Lint, A. Ya. [HOW THE JACKDAW (CORVUS MONEDULA) PASSES THE WINTER NIGHTS IN TARTU.] In: (Summaries of reports from 5th Baltic Ornithological Conference.) (Tartu). p. 111-112. 1963. [From Biol. Abstr. 45(24), 1964, from Referat. Zhur., Biol., 1964, no. 10I206. In Russian.] WR 119: 68

Middleton, A. L. A., and D. M. Scott. TESTICULAR RESPONSE TO AN INCREASED PHOTOPERIOD IN THE BROWN-HEADED COWBIRD. Auk 82(3): 504-506. July 1965. WR 119: 68

[Monash Univ., Clayton, Victoria, Australia.] Three of 17 brown-headed cowbirds (Molothrus ater) developed enlarged testes in connection with 7 weeks' exposure to an increased photoperiod during Sept. to Nov.; all of 5 cowbirds developed enlarged testes in connection with 6 weeks' exposure to an increased photoperiod in Jan. and Feb.

Parslow, J. L. F., and M. J. Carter. BOBOLINK IN THE ISLES OF SCILLY: A BIRD NEW TO GREAT BRITAIN AND IRELAND. British Birds 58(6): 208-214. June 1965. WR 119: 68

"Dolichonyx oryzivorus--the North American species."

Verzhutskii, B. N. [WINTER FEEDING OF THE EASTERN BLACK CARRION CROW (CORVUS CORONE ORIENTALIS).] Byul. Vost.-Sibirsk. Fenol. Komis. 2/3: 25-28. 1963. [From Biol. Abstr. 45(23), 1964, from Referat. Zhur., Biol., 1964, no. 3I206. Transl. of Russian abstr.] WR 119: 68

Wiens, John A. BEHAVIORAL INTERACTIONS OF RED-WINGED BLACKBIRDS AND COMMON GRACKLES ON A COMMON BREEDING GROUND. Auk 82(3): 356-374, 5 figs. July 1965. WR 119: 68

[Univ. Wis., Madison.] Red-winged blackbirds (Agelaius phoeniceus) and common grackles (Quiscalus quiscula) nested in close association in a small cattail marsh. Most interactions between the two species were initiated by the redwings. The redwings were generally more tolerant of the grackles when at the edge than when farther within the marsh. The presence of grackles had no apparent effect on redwing courtship, nesting patterns, nest placement, and only slight effect on territory configuration. Breeding success of redwings was similar to that in other colonies lacking grackles. The aggressive behavior of redwings caused grackle courtship flights and nest sites to be oriented with respect to the edges of redwing territories. Grackle courtship, pair formation, breeding schedules, and breeding success were unaffected by redwing activities. Territories of both species were to some extent mutually exclusive.

OTHER BIRDS

Alvarez del Toro, Miguel. THE NESTING OF THE BELTED FLYCATCHER. Condor 67 (4): 339-343, 3 figs. July-Aug. 1965. WR 119: 68

[Museo Zoologico, Tuxtla Gutiérrez, Chiapas, México.] Voice, the nest, behavior at the nest, and nestlings of the belted flycatcher (Xenotriccus callizonus) are discussed.

Anderson, Anders H., and Anne Anderson. THE CACTUS WRENS ON THE SANTA RITA EXPERIMENTAL RANGE, ARIZONA. Condor 67(4): 344-351, 3 figs. July-Aug. 1965. WR 119: 68

[Tucson, Ariz.] On nesting behavior and dates, and a population decline of cactus wrens (Campylorhynchus brunneicapillus).

Hall, K. R. L. A STUDY OF THE BLACKSMITH PLOVER HOPLOPTERUS ARMATUS IN THE CAPE TOWN AREA. II. BEHAVIOUR. Ostrich 35(1): 3-16. 1964. [From Biol. Abstr. 45(20), 1964.] WR 119: 68

[Univ. Bristol, Bristol, England.]

Korotkevich, E. S. [THE DISTRIBUTION OF EMPEROR PENGUINS.] Inform. Byul. Sovet. Antarkt. Ekspeditsii 42: 37-44. 1963. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1964, no. 8E179. Transl. of Russian abstr.] WR 119: 69

At present 21 colonies of emperor penguins are known in the Antarctic and 8 more are assumed. The number of emperor penguins in the 29 colonies is estimated at 350,000.

Little, Jeanne de V. NOTES ON THE BREEDING BEHAVIOUR OF THE PARADISE FLYCATCHER. Ostrich 35(1): 32-41. 1964. [From Biol. Abstr. 45(20), 1964.] WR 119: 69

[P. O. Box 76, Carolina, Transvaal, Africa.] "Terpsiphone viridis."

Molamusov, Kh. T. [THE BIOLOGY OF THE CAUCASIAN BLACK REDSTART (PHOENICURUS OCHRUROS OCHRUROS) GM.] Uch. Zap. Kabardino-Balkarsk Univ. Ser. Biol. 16: 125-130. 1962. [From Biol. Abstr. 45(19), 1964, from Referat. Zhur., Biol., 1964, no. 3I222. Transl. of Russian abstr.] WR 119: 69

Naik, R. M., and Abdur Razack. STUDIES ON THE HOUSE SWIFT, APUS AFFINIS (G. E. GRAY). 1. NEST: ITS LOCATION AND ARCHITECTURE. Pavo (Indian J. Ornithol.) 1(2): 90-98, illus. 1963. [From Biol. Abstr. 45(22), 1964.] WR 119: 69

[M. S. Univ., Baroda, India.]

Naik, Shashi, and R. M. Naik. STUDIES ON THE HOUSE SWIFT, APUS AFFINIS (G. E. GRAY). 2. QUANTITATIVE ASSESSMENT OF THE REGIONAL DISTRIBUTION OF MUCUS USED IN THE NEST. Pavo (Indian J. Ornithol.) 1(2): 99-102. 1963. [From Biol. Abstr. 45(22), 1964.] WR 119: 69

[M. S. Univ., Baroda, India.]

Neifel'dt, I. A. [THE INDIAN CUCKOO (CUCULUS M. MICROPTERUS GOULD), A NEST PARASITE OF THE SHRIKE (LANIUS CRISTATUS CONFUSUS STEGM.).] Doklady Akad. Nauk SSSR 151(6): 1446-1449. 1963. [From Biol. Abstr. 45(22), 1964. In Russian.] WR 119: 69

Nitecki, Czesław. OBSERWACJE NAD GNIEŻDŻENIEM SIE JASKÓŁKI DYMÓWKI (HIRUNDO RUSTICA L.). [OBSERVATIONS ON THE BREEDING OF THE BARN SWALLOW (HIRUNDO RUSTICA L.).] Zeszyty Naukowe Uniw. Mikolaja Kopernika W Toruniu Biol. 7: 67-90. 1964. [From Biol. Abstr. 45(22), 1964. In Polish with English summ.] WR 119: 69

[Univ. Toruń, Toruń, Poland.]

Salomonsen, Finn. THE GEOGRAPHICAL VARIATION OF THE FULMAR (FULMARUS GLACIALIS) AND THE ZONES OF MARINE ENVIRONMENT IN THE NORTH ATLANTIC. Auk 82 (3): 327-355, 1 fig. July 1965. WR 119: 69

[Zool. Museum, Copenhagen, Denmark.]

Samardzic, Dragutin. [ON THE BIOLOGY OF THE JAY, GARRULUS GLANDARIUS, IN THE VICINITY OF BANJA LUKA IN BOSNIA.] Larus 15: 202-210. 1961 [1963]. [From Biol. Abstr. 45(19), 1964. In Serbo-Croatian with German summ.] WR 119: 69

Skutch, Alexander F. LIFE HISTORY OF THE LONG-TAILED SILKY-FLYCATCHER, WITH NOTES ON RELATED SPECIES. Auk 82(3): 375-426, 8 figs. July 1965. WR 119: 69

[El Quizarrá, San Isidro del General, Costa Rica.] Contains a rather comprehensive account of the life history of Phainoptila caudatus and limited observations on Ptilogonys cinereus and Phainoptila melanoxantha.

Stickel, David W. TERRITORIAL AND BREEDING HABITS OF RED-BELLIED WOODPECKERS. Am. Midland Nat. 74(1): 110-118. July 1965. WR 119: 70
[Univ. Texas, Austin.] Abstract: A behavioral study of the red-bellied woodpecker (Centurus carolinus) was conducted in the vicinity of Carbondale, Illinois, from September 1960 through May 1963. At the end of the breeding season mated adults separated. Behavior on the winter territories was variable, grading from toleration of one another by two previously mated adults throughout the entire home range to rejection by a given bird of its former mate. Territorial behavior during the breeding season indicated that the nature of the vegetational substrate was more important to a nesting pair than the need to defend a tract of land against other members of the species. Time of the year when the pair bond was resumed was irregular. The act of selecting a potential nest site appeared to be the means of establishing the pair bond, and excavation at that site solidified the bond. The female's acceptance for nesting purposes of a cavity chiefly excavated by the male was also important in the maintenance of the pair bond. The incubation and nesting periods of this woodpecker under natural conditions, as well as the behavior of adult birds during these periods and their nesting success are reported. Analysis of data gathered during this study indicates that the contributions of the female to nesting efforts equaled and sometimes exceeded those of the male.

Umrikhina, T. S. [THE BIOLOGY OF THE SWALLOWS OF THE CHU RIVER VALLEY.] Izvest. Akad. Nauk Kirgizsk. SSR Ser. Biol. Nauk 5(2): 25-28. 1963. [From Biol. Abstr. 45(20), 1964, from Referat. Zhur., Biol., 1963, no. 24I179. Transl. of Russian abstr.] WR 119: 70

Ward, Peter. THE BREEDING BIOLOGY OF THE BLACKFACED DIOCH QUELEA QUELEA IN NIGERIA. Ibis 107(3): 326-349, 12 figs. July 1965. WR 119: 70
[Univ. Singapore, Singapore.]

Weston, Francis M., and Ellison A. Williams. RECENT RECORDS OF THE ESKIMO CURLEW. Auk 82(3): 493-496, 1 fig. July 1965. WR 119: 70
[2006 E. Jordon St., Pensacola, Fla.] Eleven cases are cited of Eskimo curlews (Numenius borealis) having been observed in North America during the past 32 years.

REPTILES AND AMPHIBIANS

Auffenberg, Walter. SEX AND SPECIES DISCRIMINATION IN TWO SYMPATRIC SOUTH AMERICAN TORTOISES. Copeia 1965(3): 335-342, 7 figs. 30 Sept. 1965. WR 119: 70
[Fla. State Museum, Gainesville.] "Geochelone denticulata and G. carbonaria."

Bartholomew, George A., Vance A. Tucker, and Anthony K. Lee. OXYGEN CONSUMPTION, THERMAL CONDUCTANCE, AND HEART RATE IN THE AUSTRALIAN SKINK TILIQUA SCINCOIDES. Copeia 1965(2): 169-173, 5 figs. 25 June 1965. WR 119: 7
[Univ. Calif., Los Angeles.]

Belkin, Daniel A. REDUCTION OF METABOLIC RATE IN RESPONSE TO STARVATION IN THE TURTLE STERNOTHAERUS MINOR. Copeia 1965(3): 367-368, 2 figs. 30 Sept. 1965. WR 119: 70
[Univ. Fla., Gainesville.]

Bleakney, J. Sherman. REPORTS OF MARINE TURTLES FROM NEW ENGLAND AND EASTERN CANADA. Canadian Field-Nat. 79(2): 120-128. Apr.-June 1965. WR 119: 70
[Acadia Univ., Wolfville, Nova Scotia.]

Brock, Elbert M. TOXICOLOGICAL FEEDING TRIALS TO EVALUATE THE HAZARD OF SECONDARY POISONING TO GOPHER SNAKES, PITUOPHIS CATENIFER. Copeia 1965(2): 244-245. 25 June 1965. WR 119: 71
[Univ. Calif., Davis.] Strychnine alkaloid, endrin, arsenic trioxide, zinc phosphide, thallium sulphate and 3 anticoagulants were fed to Microtus californicus and Peromyscus maniculatus. The dead or moribund rodents were then fed to gopher snakes and the reactions of the snakes were studied.

Brunst, V. V. EFFECTS OF IONIZING RADIATION ON THE DEVELOPMENT OF AMPHIBIANS. Quart. Rev. Biol. 40(1): 1-67, 139 figs. Mar. 1965. WR 119: 71
[Roswell Park Memorial Inst., Buffalo, N. Y.] Abstract: This review discusses certain peculiarities of the effects of radiation on living organisms, the effect of irradiation on cells, tissues, and organs, and the effects of total and local irradiation on the development of amphibians. The effects of irradiation on amphibians are compared with the effects of irradiation on higher forms (mammals, including man) and lower forms (invertebrates, microorganisms, and plants), especially by considering general problems such as formation of giant cells, phagocytosis and regression, sensitivity of cells, tissues, and organisms, and the problem of radio-stimulation. The influence of irradiation on sex cells, fertilization, embryonic development, larval development, and adult amphibians is considered.

Buckle, Donald J. THE AMPHIBIANS AND REPTILES OF LADY LAKE AREA, SASKATCHEWAN. Canadian Field-Nat. 79(2): 134-136. Apr.-June 1965. WR 119: 71
[Lady Lake, Saskatchewan.]

Cook, Francis R. ADDITIONS TO THE KNOWN RANGE OF SOME AMPHIBIANS AND REPTILES IN SASKATCHEWAN. Canadian Field-Nat. 79(2): 112-120, 3 figs. Apr.-June 1965. WR 119: 71
[Natl. Museum Canada, Ottawa, Ontario.]

Goin, Coleman J., and Crawford G. Jackson. HEMOGLOBIN VALUES OF SOME AMPHIBIANS AND REPTILES FROM FLORIDA. Herpetologica 21(2): 145-146. 25 June 1965. WR 119: 71
[Univ. Fla., Gainesville.]

Hirschfeld, Corson J. THE BLUE-GRASS PHYSIOGRAPHIC PROVINCE AND ITS INFLUENCE UPON THE DISTRIBUTION OF KENTUCKY AMPHIBIANS AND REPTILES. J. Ohio Herpetol. Soc. 4(1/2): 63. 1963. [From Biol. Abstr. 45(21), 1964.] WR 119: 71
[6242 Day Rd., Cincinnati, Ohio.] Abstract only.

Husting, B. L. SURVIVAL AND BREEDING STRUCTURE IN A POPULATION OF AMBYSTOMA MACULATUM. Copeia 1965(3): 352-362, 1 fig. 30 Sept. 1965. WR 119: 71
[Univ. College Rhodesia & Nyasaland, Salisbury, Southern Rhodesia.] Abstract: Marking-recapture records of Ambystoma maculatum taken during 5 consecutive breeding migrations at a single pond have been used to estimate population parameters. Male survival is higher than female survival. The proportion of animals breeding each year is slightly higher for males. Sex ratios in the breeding population reveal more males than females, confirming the higher male rates. Sex ratios in identifiable groups of individuals increased in favor of males during the study. Survival rates and proportions breeding were used to compute sex ratios that compare well with field sample values.

Hutchison, Victor H., and Henryk Szarski. NUMBER OF ERYTHROCYTES IN SOME AMPHIBIANS AND REPTILES. Copeia 1965(3): 373-374, 1 fig. 30 Sept. 1965. WR 119: 71
[Univ. R. I., Kingston.] Tabulations for 16 spp.

Johnson, Clifford Ray. THE DIET OF THE PACIFIC FENCE LIZARD, SCELOPORUS OCCIDENTALIS OCCIDENTALIS (BAIRD AND GIRARD), FROM NORTHERN CALIFORNIA. Herpetologica 21(2): 114-117. 25 June 1965. WR 119: 72
[U.S. Navy, Mobile Construction Battalion Five, H Company, c/o Fleet P. O., San Francisco, Calif.]

Jones, Duvall A. POPULATION ECOLOGY OF THE TREE FROG (COCHRANELLA FLEISCHMANNI). Va. J. Sci. 14(4): 206. 1963. [From Biol. Abstr. 45(19), 1964.] WR 119: 72
[Ferrum Junior Coll., Ferrum, Va.] Abstract only.

Mayhew, Wilbur W. ADAPTATIONS OF THE AMPHIBIAN, SCAPHIOPUS COUCHI, TO DESERT CONDITIONS. Am. Midland Nat. 74(1): 95-109, 7 figs. July 1965. WR 119: 72

Mendelssohn, H. ON THE BIOLOGY OF THE VENOMOUS SNAKES OF ISRAEL. I. Israel J. Zool. 12(1/4): 143-170, illus. 1963. [From Biol. Abstr. 45(20), 1964.] WR 119: 72
[Dept. Zool., Tel-Aviv Univ., Tel-Aviv, Israel.]

Milne, Lorus J., and Margery Milne. STABILIZATION OF THE VISUAL FIELD. Biol. Bull. 128(2): 285-296, 4 figs. Apr. 1965. WR 119: 72
[Univ. N. H., Durham.] Stabilization of the visual field through cyclorotational movements of the eyes has been recorded in representatives of all major groups of vertebrates and certain cephalopod mollusks, crustaceans and insects. New data are offered on Caiman, Constrictor, Hemidactylus, Bufo, Rana, Pseudotriton, and Necturus and previous work is reviewed.--From summ.

O'Brien, G. Patrick, Hanley K. Smith, and John R. Meyer. AN ACTIVITY STUDY OF A RADIOISOTOPE-TAGGED LIZARD, SCELOPORUS UNDULATUS HYACINTHINUS (SAURIA: IGUANIDAE). Southwestern Nat. 10(3): 179-187, 3 figs. 1 July 1965. WR 119: 72
[Texas A & M Univ., College Station.] Abstract: A northern fence lizard was tagged externally with gold-198 and released on a restricted area at Texas A & M University. Hourly observations of the lizard's position and activity were made for 3 days in October, 1964, and sporadic observations were made for an additional 2 weeks. A Geiger-Muller survey meter was used to detect the position of the lizard. Activity of the lizard was restricted to the daylight hours, and initiation and cessation of this activity was correlated with temperature and sunlight. During the period of intensive observation, the lizard spent 61% of its time in one large tree and 39% within a radius of 20 feet of this tree. Vertical movement varied between ground level and 20 feet, with 50% of the time being spent above 5 feet. Selection of a resting position for the night was correlated with both temperature and wind velocity.

Parker, Richard Bewley. THE ADAPTATIONS OF THE LIZARD SCELOPORUS OLIVACEUS (SMITH) TO THE WINTERS OF CENTRAL TEXAS. Ph.D. thesis, Univ. Texas. 65 p. 1965. [From abstr. in Dissertation Abstr. 26(2), 1965.] WR 119: 72
A number of species of reptiles with more northern ranges are known to locate their hibernacula deeper in the soil and to remain completely ina tive for several months. However, there is limited information concerning physiology and energy stores of these species available for comparison with the present data on Sceloporus olivaceus. Sceloporus olivaceus, which is a northern member of a semitropical species group, does not appear to have developed the adaptations to severe winters which are exhibited by more northern species.

Polushina, N. A., and V. A. Kushniruk. [ECOLOGY OF RANA DALMATINA BONAPARTE] Zool. Zhur. 42(12): 1881-1884, illus. 1963. [From Biol. Abstr. 45(20), 1964. In Russian with English summ.] WR 119: 72
[L'vov State Univ., L'vov, Ukrainian SSR.]

Schmid, William D. HIGH TEMPERATURE TOLERANCES OF BUFO HEMIOPHRYS AND BUFO COGNATUS. Ecology 46(4): 559-560, 2 figs. Early Summer 1965. WR 119: 73
[Univ. N. Dak., Grand Forks.] Bufo cognatus was able to tolerate higher temperatures than the more northern B. hemiophrys. This has been taken to indicate that a physiological specialization has taken place which is adaptive for the two species in the microclimates of their respective climates.--From abstr.

Schmidt, Robert S. LARYNX CONTROL AND CALL PRODUCTION IN FROGS. Copeia 1965(2): 143-147, 3 figs. 25 June 1965. WR 119: 73
[Univ. Chicago, Chicago, Ill.] In Rana pipiens, Hyla versicolor, and H. cinerea.

Sexton, Owen J. THE ANNUAL CYCLE OF GROWTH AND SHEDDING IN THE MIDLAND PAINTED TURTLE, CHRYSEMYS PICTA MARGINATA. Copeia 1965(3): 314-318, 1 fig. 30 Sept. 1965. WR 119: 73
[Washington Univ., St. Louis, Mo.]

Snyder, Wade F., and David L. Jameson. MULTIVARIATE GEOGRAPHIC VARIATION OF MATING CALL IN POPULATIONS OF THE PACIFIC TREE FROG (HYLA REGILLA). Copeia 1965(2): 129-142, 10 figs. 25 June 1965. WR 119: 73
[Palomar Coll., San Marcos, Calif.]

Stewart, Glenn R. THERMAL ECOLOGY OF THE GARTER SNAKES THAMNOPHIS SIRTALIS CONCINNUS (HALLOWELL) AND THAMNOPHIS ORDINOIDES (BAIRD AND GIRARD). Herpetologica 21(2): 81-102, 3 figs. 25 June 1965. WR 119: 73
[Calif. State Polytech. Coll., Pomona.]

Valentine, Barry D. THE PLETHODONTID SALAMANDER PHAEOGNATHUS: COLLECTING TECHNIQUES AND HABITS.] J. Ohio Herpetol. Soc. 4(1/2): 49-54, illus. 1963. [From Biol. Abstr. 45(22), 1964.] WR 119: 73
[Ohio State Univ., Columbus.]

Valentine, Barry D. THE REMARKABLE SALAMANDER PHAEOGNATHUS: NOTES ON BEHAVIOR AND SYSTEMATICS. J. Ohio Herpetol. Soc. 4(1/2): 64. 1963. [From Biol. Abstr. 45(22), 1964.] WR 119: 73
[Ohio State Univ., Columbus.] Abstract only.

	Page
Abramov, V. K.	31
Ackerfors, Hans G. E.	12
Adams, Lowell	9,25
Afanas'ev, Yu. G.	30
Agee, C. Phillip	55
Aguayo L., Anelio	40
Aguirre, Alvaro	64
Ahlén, Ingemar	32
Aleksandrova, I. V.	32
Aliev, F. F.	10,42
Alkon, Philip U.	15
Alvarez del Toro, Miguel	68
Anderson, Anders H.	68
Anderson, Anne	68
Anderson, Edward Wilton	58
Anderson, Roy C.	32
Arabuli, A. B.	32
Arata, Andrew A.	17
Ardamatskaya, T. B.	58
Arsen'ev, V. A.	40
Ashe, James E.	59
Auffenberg, Walter	70
Averin, Yu. V.	8
Avetisyan, O. R.	52
Babaev, Kh.	4,22
Bailey, E. D.	26
Baird, James	49,67
Bakeev, Yu. N.	28
Balda, Russell P.	57
Balser, Donald S.	31
Bang, B. G.	43
Banks, Richard C.	14,66
Bannikov, A. G.	33
Barancheev, L. M.	33
Barbour, Roger W.	20
Barkalow, F. S., Jr.	26
Barrett, John H.	51
Barsova, L. I.	17
Bartholomew, George A.	70
Bartlett, Guy	43
Bashenina, N. V.	17
Baskett, Thomas S.	15,57
Beale, Donald M.	35
Beer, James R.	29
Belkin, Daniel A.	70
Benson, Dirck	9
Bentley, P. J.	42
Berger, Daniel D.	56,65
Bergmanis, Yu.	67
Bergström, Ulf	17
Bern, Howard A.	25
Beven, Geoffrey	51
Beveridge, A. E.	25
Bibikov, D. I.	17
Biglieri, Edward G.	25
Bleakney, J. Sherman	70
Blouch, Ralph Irving	36
Blum, P. N.	43
Blumental', T. I.	44
Blyumental', T. I.	43
Boeker, Erwin L.	64
Bookhout, Theodore A.	9
Borodikhin, I. F.	43
Boronin, V. A.	42
Bossenmaier, Eugene F.	60
Box, Thadis W.	33
Boykins, Ernest A.	5
Bradley, W. Glen	13
Brant, Daniel H.	18
Brenner, Frederic James, III	67
Brink, Charles Holden	26
Brock, Elbert M.	71
Bromlei, G. F.	3
Brown, S. G.	40
Bruce, Willis N.	67
Brunetti, Oscar A.	33
Brunst, V. V.	71
Brysova, L. P.	17
Buckle, Donald J.	71
Buller, Raymond J.	64
Burns, John James	30
Buss, Irven O.	34
Caldwell, Joseph Arthur	30
Caldwell, Larry D.	18
Cardot, J.	32
Carter, M. J.	68
Caskey, Albert L.	17
Catts, E. P.	18
Chabreck, Robert H.	58
Chamberlain, J. L.	9
Chang, Chieh	11
Chernikin, S. M.	27
Chernonog, N. F.	21
Chernov, Yu. I.	44
Chernyavskaya, S. I.	52
Chernyavskii, F. B.	11
Chew, Robert M.	18
Child, G.	44
Churkina, N. M.	5
Clarke, Robert	40
Clough, Garrett C.	19
Conaway, Clinton H.	15
Cook, Francis R.	71
Cook, R. S.	12
Copelin, Farrell F.	58
Corbet, G. B.	13
Cortopassi, Angelo J.	51
Corzo, Rodolfo Hernandez	59
Cowardin, Lewis M.	59
Cramp, Stanley	50
Crandall, Dorothy L.	9
Crissey, Walter F.	59
Crout, Jack D.	2
Cunningham, Richard L.	64
Daniel, M. J.	25
Danilyuk, I. I.	67
Dauphin, K. P.	10
Davey, Stuart P.	41
Davis, D. H. S.	19
Davis, John	44

Page

.... 64
.... 9
.... 43
.... 42
.... 60
.... 33
.... 5
.... 13
.... 18
.... 67
.... 26
.... 71
.... 3
.... 40
.... 67
.... 33
.... 71
.... 17
..... 71
..... 64
..... 30
..... 34
..... 30
..... 18
..... 32
..... 68
..... 17
..... 18
..... 58
..... 9
..... 11
..... 27
..... 21
..... 44
..... 52
..... 11
..... 18
..... 44
..... 5
..... 40
..... 19
..... 15
..... 71
..... 12
..... 58
..... 13
..... 51
..... 59
..... 59
..... 50
..... 9
..... 59
..... 2
..... 64
..... 25
..... 67
..... 10
..... 41
..... 19
..... 44

Page

Day, Gerald I. 33
Debbie, J. G. 36
Decei, Paul 32
Demin, E. P. 15
Devyatkina, M. S. 25
Dietz, Donald R. 34
Ditchfield, J. 36
Dixon, Keith L. 44
Dmitryuk, G. Ya. 21
Dobrinskii, L. N. 44
Dobrokhotov, B. P. 6
Dobrynina, I. N. 44
Dodds, Donald G. 15
Dodge, Darold A. 2
Doell, Dean D. 35
Dol'nik, V. R. 43,44
Doran, Garry 44
Doremus, Henry M. 13
Dorofeev, S. V. 40
Dowler, Janet L. 42
Downs, Martha Sapp 17
Duchits, V. N. 50
Dudley, Eugene Frederick 15
Dul'keit, G. D. 19
Dundee, Harold A. 13
Dyson, Richard F. 33
Dzubin, Alex 61
Ealey, E. H. M. 42
Eglitis, V. K. 8
Egorenko, G. G. 22
Ehrenreich, John H. 3
Elliott, Bruce G. 44
Ellström, K. 19
Erickson, Albert Wendell 29
Evans, Raymond D. 15
Evdokimov, E. I. 11
Fedyanina, T. F. 55
Ferguson-Lees, I. J. 50
Fil', B. 36
Finley, Robert B., Jr. 5
Fisher, Harvey I. 50
Flux, John E. C. 15
Franki, Guido E. 2
Fredrickson, Luther E. 31
Freshwater, I. T. 42
Frischknecht, Neil C. 19
Frohling, Robert C. 64
Galushin, V. M. 52
Gaskin, D. E. 40
Gates, John M. 59
Gentry, John B. 18
George, J. C. 45
Getz, Lowell L. 19
Gilchrist, Richard D. 25
Gill, Frank B. 46
Gill, John D. 37
Glazener, W. C. 12
Glotov, I. N. 19
Goertz, John W. 20,26,48
Goforth, W. Reid 57
Goin, Coleman J. 71
Golley, Frank B. 31

Page

Golubev, P. D. 20
Goodwin, Derek 45
Gottschalk, John S. 60
Graber, Jean W. 45
Graber, Richard R. 45,67
Grakov, N. N. 30
Grant, P. R. 45
Grice, Darrell G. 2
Grubb, W. B. 54
Gudritis, V. 29,34
Gulyaeva, M. A. 34
Gurskii, I. G. 46
Gyngazov, A. M. 45,50
Gysel, Leslie W. 38
Hagar, Donald 37
Hall, K. R. L. 68
Halladay, Orlynn Joseph 34
Hamerstrom, F. N., Jr. 56
Hamerstrom, Frances 56
Hansen, Richard M. 20
Harms, G. F. 2
Harris, John Tom 34
Harris, M. P. 51
Harris, Stanley W. 60
Harrison, C. J. O. 46
Hartung, Rolf 60
Harvey, Michael J. 20
Hatch, Jeremy J. 52
Haugen, Arnold O. 39
Haverschmidt, F. 45
Hayden, Page 18
Hayne, Don W. 20
Heffner, R. L. 2
Heráňová, Hana 65
Herreid, Clyde F. 49
Hesselton, William T. 37
Hida, Thomas S. 41
Higuchi, Sukesaburo 20
Hirschfeld, Corson J. 71
Hitchcock, W. B. 65
Hochbaum, H. Albert 60
Höglund, Nils H. 56
Holcomb, Larry C. 31,45
Holloway, Harry L., Jr. 42
Horváth, Otto 13
Huckle, H. F. 2
Hudson, George E. 55
Hudson, Jack W. 20
Hudson, Robert 51
Hungerford, Charles R. 37
Hunter, Brian F. 55
Husting, E. L. 71
Hutchison, Victor H. 71
Il'ichev, V. D. 45
Imaizumi, Yoshinori 11
Isaacson, A. J. 58
Ishunin, G. I. 3
Ismagilov, M. I. 21,27
Ivanauskas, T. 53
Ivanter, E. V. 50
Jackson, Crawford G. 71
Jameson, David L. 73

Page

Jarrell, Gordon 13
Jenkins, David Hall 37
Jenkins, James H. 31
Johnels, A. G. 19
Johnson, Clifford Ray 72
Johnson, Loyal J. 21
Johnson, Oscar W. 34
Johnston, David W. 49
Johnston, G. C. 5
Joly, M. 32
Jones, Duvall A. 72
Jones, Webster B. 34
Jonsgård, Åge 40
Jordan, James S. 37
Jovetić, Radivoje 65
Jullien, A. 32
Kadyrbaev, Kh. K. 21
Kalmus, H. 4
Kapitonov, V. I. 27
Karnaukhova, N. G. 25
Karstad, L. H. 36
Kartashev, N. N. 65
Kashkarov, D. 46
Kavanau, J. Lee 18
Kaznevskii, P. F. 34
Kear, Janet 60
Kendeigh, S. Charles 8
Keskpaik, Yu. E. 44
Khanmamedov, A. I. 42
Khodashova, K. S. 21
Khrustalev, S. 27
Khrustselevskii, V. P. 17,21
Khusainov, A. 66
Kilham, Lawrence 46
Kim, T. A. 35
Kinard, Frederick W., Jr. 30
Kirchberg, E. 21
Kirikov, S. V. 3
Kirkpatrick, Ralph D. 21
Kishchinskii, A. A. 11
Klein, David R. 38
Klíma, Milan 65
Klimstra, Willard D. 54
Knowlton, Frederick Frank 38
Koivisto, Ilkka 56
Korchmar', N. D. 30
Korotkevich, E. S. 69
Koryakov, B. P. 28
Kostin, V. P. 10
Kostin, Yu. V. 50
Kozhevnikova, R. K. 17
Krasovskii, L. I. 32
Kridler, Eugene 43
Kristoffersson, Rolf 13
Krylov, V. I. 40
Kryukov, K. I. 4
Kryzhanovskaya, V. V. 21
Kugel, D. I. 21
Kurskov, A. N. 13
Kurskova, T. N. 55
Kurtén, Björn 29
Kushniruk, V. A. 72

Page

Kydyrbaev, Kh. K. 27
Lampio, Teppo 27
Landeen, Fred H. 33
Langan, L. N. 2
Lanyon, Wesley E. 46
Lavov, M. A. 11
Leach, Mrs. Robert 43
Lebedev, A. D. 10
Le Cren, E. D. 6
Ledger, Horace P. 10
Lee, Anthony K. 70
Lein'sh, G. T. 61
Lent, Peter C. 35
Leonard, Justin W. 6
Leont'ev, A. N. 21
Levkovich, E. N. 54
Likhachev, A. I. 35
Lindberg, Robert G. 18
Linder, Raymond L. 55
Lint, A. Ya. 68
Little, Jeanne de V. 69
Locke, Louis N. 54
Loftin, Horace 50,66
Long, Charles A. 30
Long, R. 65
Luniak, Maciej 52
Lustin, V. S. 55
L'vov, I. A. 55
Lyuleeva, D. S. 46,52
Magnussen, W. B. 36
Main, A. R. 42
Malone, Charles R. 61,65
Mankins, Jerome V. 13
Manucharyan, G. G. 52,53
Marakov, S. V. 3,30,41,53
Marchinton, Robert Larry 38
Marcström, Vidar 56
Marinina, L. S. 4
Mathiak, Harold A. 7
Mattfeld, George Francis 38
Matvievskii, A. S. 16
Mayhew, Wilbur W. 72
McCandless, James B. 50
McFarland, D. J. 57,58
McKinney, F. 61
Meaden, F. M. 46
Meadows, Betty Jane 8
Meanley, Brooke 66
Mendelssohn, H. 72
Mewaldt, L. Richard 51
Meyer, John R. 13,72
Michurin, L. 35
Middleton, A. L. A. 68
Middleton, Jane 46
Mikheev, A. V. 46
Mikhel'son, G. A. 61
Mikhel'son, Kh. A. 61
Miller, Frank L. 38
Miller, Harvey 61
Milne, Lorus J. 72
Milne, Margery Milne 72
Milne, Robert C. 62

Page

..... 27
..... 27
..... 33
..... 2
..... 46
..... 11
..... 43
..... 10
..... 6
..... 10
..... 70
..... 61
..... 35
..... 6
..... 21
..... 54
..... 35
..... 18
..... 55
..... 68
..... 69
..... 54
... 50,66
..... 30
..... 65
..... 52
..... 55
..... 55
... 46,52
..... 36
..... 42
... 61,65
..... 13
... 52,53
,30,41,53
..... 38
..... 56
..... 4
..... 7
..... 38
..... 16
..... 72
..... 50
.... 57,58
..... 61
..... 46
..... 8
..... 66
..... 72
..... 51
.... 13,72
..... 35
..... 68
..... 46
..... 46
..... 61
..... 61
..... 38
..... 61
..... 72
..... 72
..... 62

Page

Minoranskii, V. A. 65
Mirotvortsev, Yu. I. 25
Molamusov, Kh. T. 69
Moor, Ken 13
Moore, N. W. 5
Moran, Richard J. 35
Mörzer Bruijns, M. F. 53
Mueller, Helmut C. 65
Mukhamedkulov, M. M. 21
Mukhtarov, R. D. 30
Mullen, David Anthony 22
Mumford, Russell E. 53
Munro, David A. 62
Murphy, Dean A. 3
Murphy, Dennis Wilson 42
Murray, Bertram G., Jr. 46
Murray, David F. 28
Murray, J. J., Sr. 50
Murton, R. K. 58
Naik, R. M. 69
Naik, Shashi 69
Naniev, V. I. 35
Nasimovich, A. A. 4
Nassif, B. D. 12
Naumov, N. P. 4
Naumov, R. L. 54
Naumov, S. P. 10
Nazarenko, L. F. 46
Neal, Bobby J. 27
Nedeljak, František 11
Neeley, John A. 2
Negus, Norman C. 13,17,22
Neifel'dt, I. A. 69
Nekipelov, N. V. 11
Nellis, Carl 38
Nelson, J. B. 46,47
Neronov, V. M. 22
Nickell, Walter P. 43
Nikiforov, P. I. 22
Nikitin, V. P. 27
Nitecki, Czesław 69
Nolan, Val, Jr. 47,53
Nordstrom, Goran 47
Norris, Kenneth S. 41
Noskov, G. A. 43
Novick, Alvin 13
Numerov, K. D. 30
Nurgel'dyev, O. N. 4,11,22
O'Brien, G. Patrick 72
O'Farrell, Thomas P. 16
Olivares, A. 66
Ol'kova, N. V. 27
Olson, David P. 62
Olson, John Bernard 47
O'Meara, David C. 37
Orlova, G. M. 44
Orr, Robert T. 14
Osborn, Katherine H. 3
Ozoga, John J. 35,38
Packer, Wayne C. 42
Paevskii, V. A. 47,52
Paliza G., Obla 40

Page

Panov, E. N. 65
Panteleev, P. A. 22
Panyutin, P. 4
Papanyan, S. B. 23
Parker, Richard Bewley 72
Parnell, James Franklin 47
Parovshchikov, V. Ya. 29
Parslow, J. L. F. 68
Pavlov, P. N. 30
Pearson, Henry A. 39
Pedersen, Alwin 31
Perry, Robert F. 9
Peterson, Clell T. 65
Peterson, Randolph L. 14
Petrides, George A. 31
Petrov, V. S. 17
Pinter, Aelita J. 22
Pitelka, Frank A. 23
Polushina, N. A. 29,72
Popov, A. V. 53
Portenko, L. A. 11
Poslavskii, A. N. 47
Pournelle, George H. 31
Powell, Jeff 33
Prakash, Ishwar 12
Priklonskii, S. G. 52,62
Prokof'eva, Z. V. 23
Provost, Ernest E. 55
Pryor, Karen 41
Pryor, Taylor 41
Ptushenko, E. S. 43
Pulliainen, Erkki 47
Rakhilin, V. K. 48
Ransom, A. Brian 56
Rauber, Ernest L. 31
Rausch, Robert L. 23
Raveling, Dennis G. 48
Razack, Abdur 69
Reimers, N. F. 8
Rice, Dale W. 41
Richards, Stephen H. 35
Richens, V. B. 23
Ripley, S. Dillon 50
Rising, James D. 48
Roberts, Harvey A. 56
Romanov, A. N. 56,57
Rood, J. P. 14
Roppel, Alton Y. 41
Roseberry, John L. 54
Rosen, Merton N. 55
Rowsell, H. C. 36
Rozhkov, A. S. 8
Rudyshin, M. P. 4,14
Ruprecht, A. 67
Rusanov, Ya. 54
Rusanov, Ya. S. 35
Rutilevskii, G. L. 51
Rzhakhova, O. E. 54
Sadleir, R. M. F. S. 23
Sadler, Kenneth C. 15
Sakowicz, M. 36
Salganskii, A. A. 8

	Page
Salikhbaev, Kh. S.	3
Salomonsen, Finn	69
Samardzic, Dragutin	69
Samoilov, E. B.	35
Samusenko, E. G.	53
Savina, M. A.	10
Scanlon, John E.	12
Schelling, J.	9
Schmid, William D.	73
Schmidt, Robert S.	73
Schneider, Karl Burton	62
Schultz, Allen Lee	30
Schultz, Arnold M.	24
Schuster, Joseph L.	8
Scott, D. M.	68
Scott, Robert F.	7
Seabloom, Robert W.	29
Semashko, L. L.	48
Severinghaus, C. W.	37
Sexton, Owen J.	73
Shafer, Elwood L., Jr.	39
Shannon, Walter T.	63
Sharets, A. S.	21
Shepherd, Peter E. K.	60
Sherfey, Lester E.	2
Sherwood, Glen A.	63
Shil'dmakher, Kh.	43
Shkilev, V. V.	24
Shomura, Richard S.	41
Shuntov, V. P.	48
Shvarts, S. S.	10
Shvetsov, Yu. G.	24
Siegel, P. B.	54
Siegfried, W. R.	63
Silver, Helenette	39
Sinel'nikov, A. M.	8
Siniff, Donald B.	10
Sketchley, Harold R.	3
Skrobov, V. D.	31
Skutch, Alexander F.	69
Slastenina, E. S.	24
Smart, Glen	63
Smith, Arthur D.	35
Smith, Charlotte E.	67
Smith, Hanley K.	72
Smith, M. S. R.	41
Smith, Norman S.	10
Smith, Robert Leo	27,28
Smogorzhevskii, L. A.	48
Snyder, Wade F.	73
Sokal, Robert R.	6
Sokolov, G. A.	9,35,36
Solomatin, A. O.	36
Solomonov, N. G.	24
Soots, R. F., Jr.	26
Spangenberg, E. P.	50
Stal'makova, V. A.	48
Stanton, Frank W.	7
Starkov, I. A.	4
Starrett, Andrew	14
Stay, Francis	13
Stensrude, Curt	67
Stewart, Glenn R.	73
Steyn, P.	67
Stickel, David W.	48,70
Stiteler, William M., Jr.	37
Stokes, A. W.	7
Stones, Robert C.	14
Storm, G. L.	10
Strautman, E. I.	29
Strickland, Walter N.	6
Stromar, Ljubica	48
Suomalainen, Paavo	13
Surdacki, Stanisław	28
Szarski, Henryk	71
Tambotov, A. K.	24
Tanck, John E.	37
Tanis, J. J. C.	53
Tatarinov, K. A.	8
Tatton, J. O'G.	5
Taylor, R. H.	36
Taylor, Walter Kingsley	48
Teidman, George H.	15
Tenovuo, Rauno	58
Teplov, V. P.	52
Tester, John R.	10
Thomas, Luttrell	31
Thompson, Daniel Q.	20,24
Thurber, Hartford G.	15
Timofeeva, A. A.	25
Tkachenko, A. A.	50
Tkachenko, V. I.	25
Tomkins, Ivan R.	66
Tormosov, D. D.	42
Trainer, D. O.	12
Trakhanov, D. F.	22
Trapp, Gene R.	16
Trauger, David L.	39
Treus, V. D.	8
Trojan, P.	25
Tsetsevinskii, L. M.	28
Tucker, Don	49
Tucker, Vance A.	70
Tyson, E. L.	66
Umrikhina, T. S.	70
Urbański, Jarosław	4
Uryadova, L. P.	43
Uspenskii, G. A.	8
Ustinov, S. K.	36
Valentine, Barry D.	73
Valyus, M.	63
Vasiliu, George D.	32
Veghte, James H.	49
Verbeek, Nicolaas A. M.	28
Verme, Louis J.	39
Verzhutskii, B. N.	68
Viksne, Ya. A.	61,66
Vil'baste, Kh. G.	51
Vinogradov, V. V.	52
Vinokurov, A. A.	66
Volchanetskii, I. B.	51
Voronov, G. A.	17
Voronov, V. G.	11
Vshivkov, F. N.	2

	Page
Vylegzhanin, A. F.	42
Walkinshaw, Lawrence H.	66
Wang, Sy Ying Chen	55
Wang, Tsung-Yi	11
Ward, Peter	52,70
Warner, Dwain W.	48
Webb, William L.	11
Weeden, Robert B.	57
Weeks, H. H.	2
West, George C.	8
West, William I.	3
Weston, Francis M.	70
Westwood, N. J.	58
Wetherbee, David Kenneth	66
Whitney, Craig Alan	5
Wiebers, Jacob E.	14
Wiens, John A.	68
Wilber, Charles G.	25
Wilcock, John	49
Wiley, F. C., III	54
Williams, C. E.	17
Williams, D. A.	63
Williams, Ellison A.	70
Williams, John Edwin	64
Wingate, David B.	49
Winterbottom, J. M.	51
Wojciechowska, B.	25
Wood, John E.	25
Wunderle, Steven L.	67
Wurster, Charles F., Jr.	6
Wurster, Doris H.	6
Wust, Walter	49
Yakobi, V. E.	49
Yarbrough, Charles G.	49
Yazan, Yu. P.	28
Yoder, Ray A.	3
Yurgenson, P. B.	54
Zakhlebnyi, A.	36
Zaletaev, V. S.	51
Zamakhaev, V. A.	29
Zarnowski, Eugeniusz	12
Zemsky, V. A.	42
Zhdanov, A. P.	29
Zimin, V. B.	43
Zimny, Marilyn L.	28
Zotova, A. A.	22
Zuichenko, N. A.	27
Zurowski, W.	36
Zykov, K. D.	52
Balph, D. F.	7

Manuscript for this issue was completed 8 April 1966

U.S. GOVERNMENT PRINTING OFFICE : 1966 O—215-465